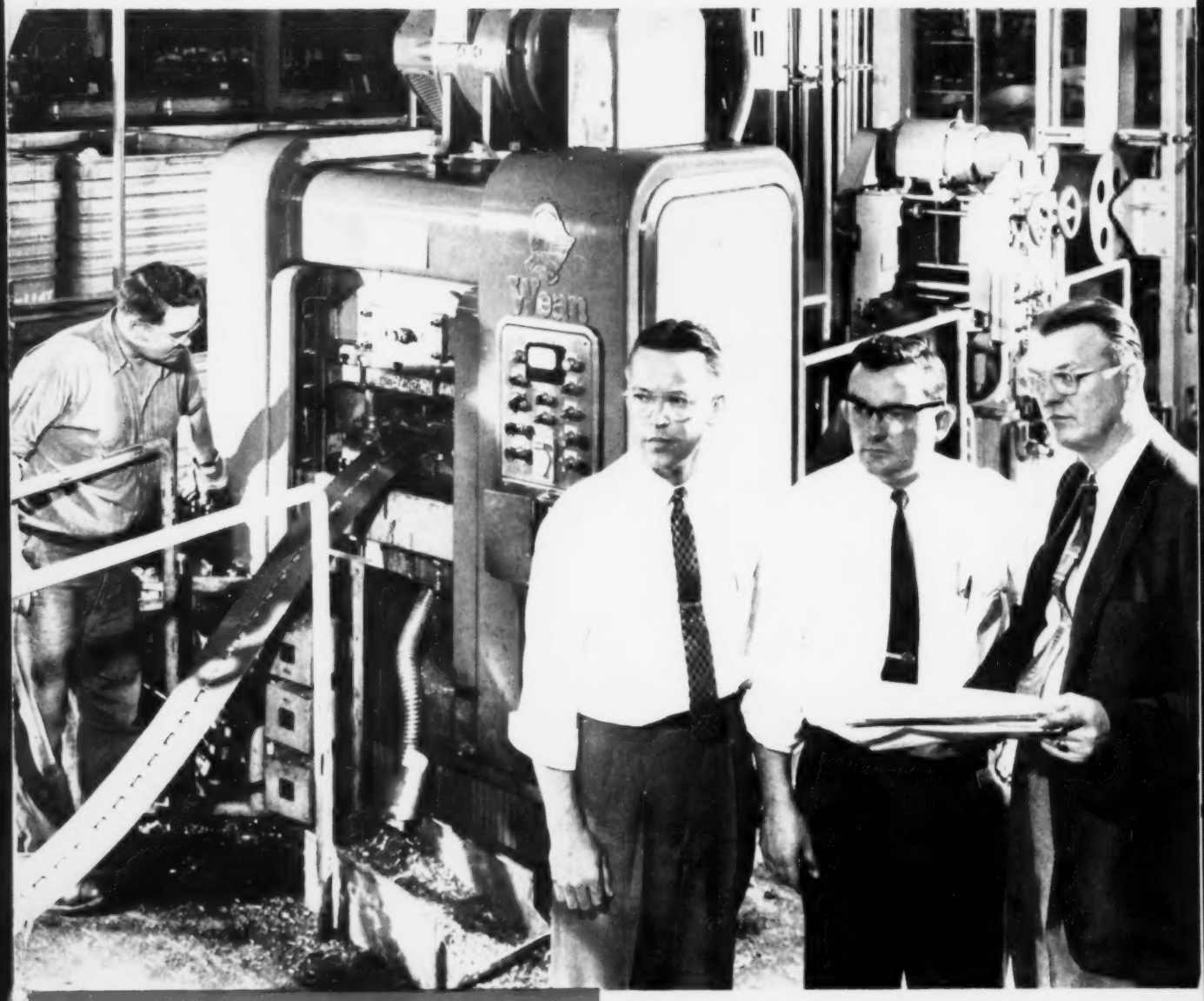
The IRON AGE
July 18, 1957
The National Metalworking Weekly



New Advance In Continuous Press Forming P. 111

The Growing Market For Tinplate – P. 71

What To Do When The Tax Man Comes – P. 74

Digest of the Week P. 2-3

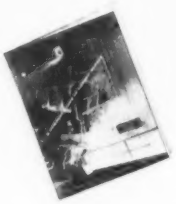
19% PRODUCTION INCREASE AND SUPERIOR FINISH

when Universal Engineering Co. switched to

LEADED 6150

In the production of this collet, Universal Engineering Co. reported it was able to increase spindle speed from 308 to 374 R.P.M. and machine speed from 108 to 125 S.F.M. Feed was stepped up from .0027 to .0047 inch per revolution. In addition to a production increase from 101 to 120 pieces per hour, finish was greatly improved and tool life was extended appreciably.

These are typical benefits obtained by users of lead treated Aristoloy Steels—benefits which you can enjoy by getting in touch with your nearest Copperweld district office.



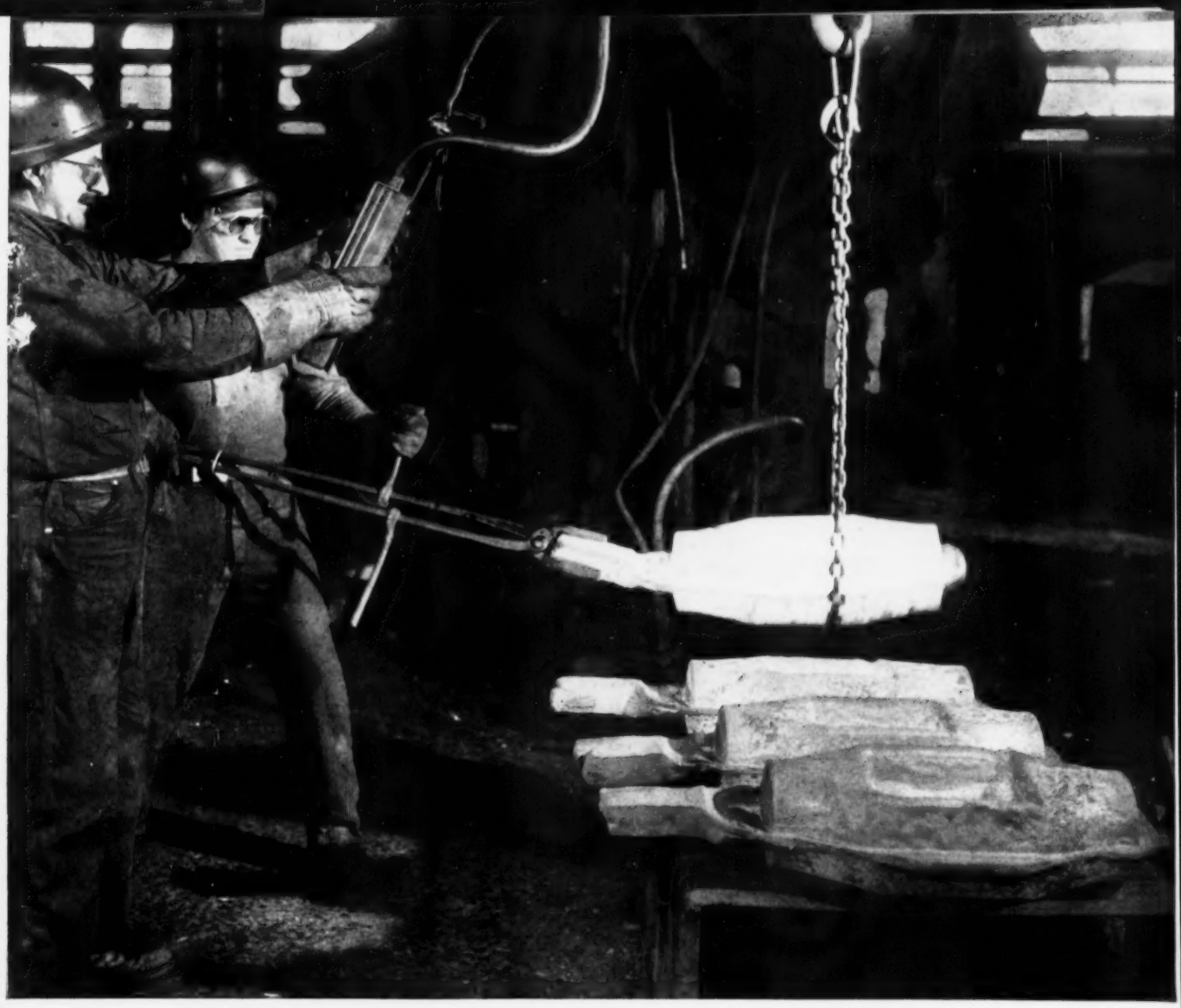
JUST OFF THE PRESS

New Leaded Steel Catalog.
Write for your copy today.

COPPERWELD STEEL COMPANY • Steel Division
4001 Mahoning Avenue • WARREN, OHIO

EXPORT: Copperweld Steel International Co., 225 Broadway, New York 7, N.Y.

ARISTOLOY STEELS



This Time It Was Turnbuckles

One thing that makes drop forging an interesting business is the immense variety of items that come from the hammers. On Monday it may be steam-trap bodies, hand wrenches, and cranks. On Tuesday perhaps spring hangers, parts for oil-well bits, gear blanks, strut forgings. The rest of the week, almost anything you can think of within the limits of drop-forge capacity.

Bethlehem has manufactured so many types of drop forgings that it's impossible to list them all. When the photograph above was taken, some turnbuckles were having their inning. The picture shows you a few of the rough forgings just after leaving the hammer. Each weighed better than 200 lb.

These were relatively large pieces, but Bethlehem often makes drop forgings that run heavier—and of course, many that are smaller. Our range is from approximately one lb to 250 lb; our range of designs, just about limitless.

Your inquiries for any types of closed-die forgings will be handled promptly, and you can expect full cooperation from our engineering staff.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

THE IRON AGE
Chestnut and 56th Sts.
Philadelphia 39, Pa.
SHerwood 8-2000

GEORGE T. HOOK, Publisher
EDITORIAL STAFF

TOM C. CAMPBELL, Editor-in-Chief
GEORGE F. SULLIVAN, Editor

Managing Editor — E. C. Beaudet
News-Markets Editor — J. B. Delaney
Asst. News Mkts. Ed. — R. D. Raddant
Technical Editor — J. J. Obrzut
Engineering Editor — W. G. Patton
Machinery Editor — E. J. Egan, Jr.
Metallurgical Editor — P. M. Unterweiser
Materials Editor — Wm. Czygan
Art Director — J. A. Degen

Associate Editors: F. J. Starin, P. J. Cathey, R. Schulin, F. P. Plimpton, Assistant Editor: J. A. Moore. Regional Editors: K. W. Bennett, Chicago; T. M. Rohan, Cleveland; H. R. Neal, Detroit; G. G. Carr, New York; R. R. Kay, Los Angeles; G. J. McManus, Pittsburgh; G. H. Baker, R. M. Stroupe, N. R. Regeimbal, Washington. Correspondents: F. L. Allen, Birmingham; N. Levenson, Boston; R. M. Edmonds, St. Louis; J. Miller, San Francisco; R. Kazarian, Buffalo; D. A. Coughlin, Seattle; F. Sanderson, Toronto; F. H. Harley, London, England; Chilton Editorial Board: Paul Wooton, Washington representative.

WASHINGTON EDITORIAL OFFICE
Washington 4 — National Press Bldg.

BUSINESS STAFF

Production Manager — Warren Owens
Director of Research — Oliver Johnson
Circulation Mgr. — W. M. Coffey
Promotion Manager — Richard Gibson
Asst. Research Dir. — Wm. Laimbeer

REGIONAL BUSINESS MANAGERS

Chicago 1 — T. H. Barry, W. R. Pankow
360 N. Michigan Ave. — Randolph 6-2166
Cleveland 15 — Robert W. Watts
930 B. F. Keith Bldg. — Superior 1-2860
Columbus 15, Ohio — Harry G. Mumm
LeVegue-Lincoln Tower — Capital 1-3762
Detroit 2 — W. J. Mulder
103 Pallister Ave. — Trinity 1-3120
Los Angeles 28 — R. Raymond Kay
2420 Cheremoya Ave. — Holly'd 3-1882
New York 17 — C. H. Ober, C. T. Post
100 E. 42nd St. — Oxford 7-3400
Philadelphia, B. L. Herman, J. A. Crites
56th & Chestnut Sts. — Sherwood 8-2000
Pittsburgh 22 — T. M. Fallon
1502 Park Bldg. — Atlantic 1-1832
San Francisco 3 — Don May
1355 Market St. — Underhill 1-9737
Tulsa — H. E. Mott, J. W. Sangston
621 Petroleum Bldg. — Luther 4-1769
W. Hartford 7 — Paul Bachman
62 LaSalle Rd. — Adams 2-0486
England — Harry Becker
15 Gratton St., Altrincham, Cheshire.

One of the Publications Owned and Published by Chilton Company, Chestnut & 56th Sts., Philadelphia 39, Pa.

OFFICERS AND DIRECTORS

Joseph S. Hildreth, Ch. of the Board
G. C. Buzby, President

Vice-Presidents: P. M. Fahrendorf, Harry V. Duffy, George T. Hook, Robert E. McKenna, Leonard V. Rowlands; Treasurer, William H. Vallar; Secretary, John Blair Moffett; Directors: Maurice E. Cox, Frank P. Tighe, Irving E. Hand, Everit B. Terhune, Jr., Russell W. Case, Jr., John C. Hildreth, Jr.; Comptroller, Stanley Appleby.

Indexed in the Industrial Arts Index and the Engineering Index.

BPA NBP

Copyright 1957 by Chilton Company

THE IRON AGE, published every Thursday by CHILTON COMPANY, Chestnut & 56th Sts., Philadelphia 39, Pa. Entered as second class matter, Nov. 8, 1952, at the Post Office at Philadelphia under the Act of March 3, 1879. Price to the metal-working industries only or to people actively engaged therein, $5 for 1 year, $8 for 2 years in the United States, its territories and Canada. All others $15 for 1 year; other Western Hemisphere countries, $15; other Foreign Countries, $25 per year. Single copies 50¢. Annual Review Issue $2.00. Cable: "Ironage," N. Y.

The IRON AGE

July 18, 1957—Vol. 180, No. 3

Digest of the Week in

★Starred items are digested at right.

EDITORIAL

Disarmament Bugaboo—Don't Let It Alarm You 7

NEWS OF INDUSTRY

★Special Report: Mills Expand To Meet Growing Tinplate Needs 71
★Price Probe Draws Bead On Steel 73
★What To Do When Tax Man Calls 74
★Appliance Makers Cut Back Steel Stocks Too Far For Comfort 76
★Truck Buyers Want Stainless Tanks 77
★Alcoa Completes Major Expansion 78
★New Vacuum Melt Furnace Ready 79
How To Use A Personnel Recruiter 80
Iron Age Salutes 85
Men in Metalworking 101

NEWS ANALYSIS

Newsfront 69
Report to Management 87
★Automotive 88
★Washington 93
West Coast 95
Machine Tool 97

FEATURE ARTICLES

★Big Advance In Continuous Forming 111
★Vertical Expansion Aids Production 114
★Slugging Speeds Small-Lot Output 116
Machine Doubles Cold Heading Rate 119
★Stainless Surfacing Ends Pitting 120
★Z-Mill Helps Stainless Producer 122
★Hold Surface Cutting Speed Constant 124

MARKETS & PRICES

★Iron Age Summary—Steel Mills Boost Operations 167
Purchasing 168
Steel Products Markets 170
Iron and Steel Scrap Markets 172
Nonferrous Markets 176
Steel Prices 179
Clearing House 188

REGULAR DEPARTMENTS

Free Literature 128
Technical Briefs 136
New Books 153
New Equipment 156

INDEX TO ADVERTISERS 196

NEWS ARTICLES

TINPLATE

Capacity Enlarged — Steel mills continue to expand tinplate capacity. It's expected that demand will more than meet the 1 million-ton addition to tinplate output. Producers keep a sharp eye on crop conditions which determine canning demand. P. 71

APPLIANCES

Second Half Comeback—Things look good for appliances later this year. Cutbacks at manufacturing

level and retail could have been too severe. Production has lagged behind sales and makers could be caught with inventories down. P. 76

PRICE HEARINGS

Steel is Target — Senate probers are investigating "administered prices." But insiders say the real target is the steel industry. Chances are though that steel men will not be called before August. The hassle over civil rights bill is holding up the parade. P. 73

ENTER THE TAX MAN

Relax but Prepare—When the tax man comes to look over your re-

Metalworking

FLYING PRESS LINE: There's no stop-and-go even at the piercing and press forming stage. This is the first report on how GM's Fisher Body Div. has made big advances in continuous forming. Look on p. 11 for who's who among personnel shown on cover. **P. 111**

turns, be ready. He's not your friend, but he's not your enemy either. Cooperation will make the experience almost painless. Another tip: Have your records handy. **P. 74**

ALUMINUM ROLLING

Big New Equipment—A $54 million expansion at Alcoa's Davenport, Ia., plant includes installation of some of the largest equipment for rolling aluminum. Capacity is boosted to 36 million lb per month, including 2 million lb of foil from eight new mills **P. 78**

FEATURE ARTICLES

PLANT EXPANSION

Try Vertical Design—Increasing production of an in-line operation brings to mind expansion of floor space. But one company, without increasing floor space, gets an eightfold increase in output by using vertical equipment. A housing built through the roof provided the space needed. **P. 114**

AUTOMATIC SAW

Speeds Small-Lot Output — The sawing of solid bar stock into slugs for machining on automatic chuckers proves the best approach for small-lot precision parts. The power band saw with automatic indexing and feed can keep up with stock needs for three chuckers. **P. 116**

STAINLESS PROTECTION

Prevents Pitting—A welding technique is restoring shafts where pitting caused poor performance in extrusion presses. It's a stainless steel bead that can be machined to a near-mirror finish. **P. 120**

SMALL FIRM HOLDS LINE

With Quality and Service—Installation of a Z-mill is latest example of how one stainless steel company can handle the smallest order. With a million pound inventory, the firm capitalizes on prompt filling of orders. **P. 122**

SURFACE CUTTING SPEED

Hold Constant—Production turning operations involve finding correct cutting speeds for a given material. Data shows how cutting speed affects tool life, resulting finish and accuracy. It's more than just setting a constant spindle speed. **P. 124**

MARKETS & PRICES

STAINLESS STEEL

Tank Truck Market Grows—New ICC regulations permitting petroleum trucks to haul chemicals is expected to increase demand for stainless tanks. One-gage lighter construction is allowed. **P. 77**

VACUUM MELTING

Biggest and Heaviest—New Allegheny Ludlum consumable electrode vacuum melting furnace turns out ingots of 12,000 lb. Large size will widen uses of super-alloys and broaden list of applications. Previously ingots were 5000 lb. **P. 79**

AUTO REAR WINDOWS

GM Sales Affected—How does window styling influence a car's sales? Some say Buick and Olds' poor showing can be partly blamed on 3-piece rear windows. The design probably was dictated by structural necessity. **P. 88**

HARD MONEY STAYS

Policy to Continue—You'll have to put up with the Government's hard money policies for some time to come. Higher wages and higher prices are to blame. However, in spite of tight money, the demand for loans for expansion stays high. P. **93**

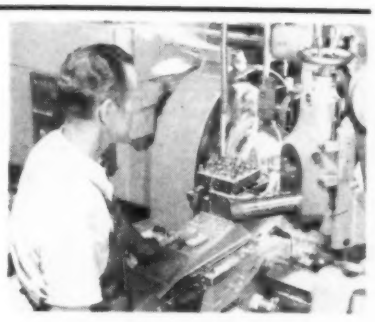
STEEL OUTLOOK

Optimism Grows—Steel men are counting on an improved third quarter and a strong fourth. Buyers should be on the alert. **P. 167**

NEXT WEEK

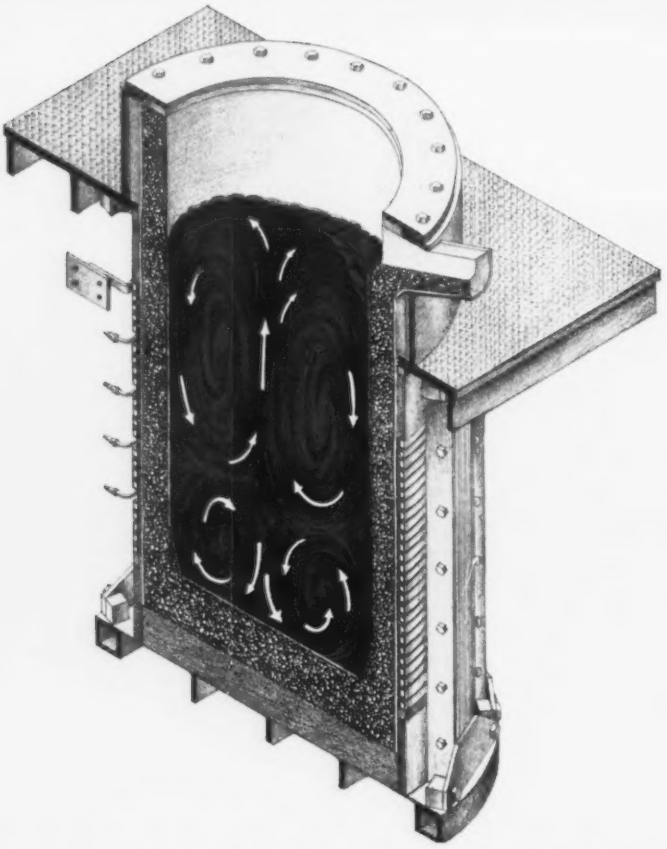
YOUR MACHINING DOLLAR

Three Factors—It takes a lot of ingenuity and "know-how" to neatly balance costs, machining efficiency and quality. No. 10 in the Metalworking Dollar Series will set down some hints on how to get more for your machining dollar.



AJAX-JUNKER

a new principle in 60 Cycle induction melting



WHAT IT IS:

- A cylindrical induction coil supplied with ordinary 60 cycle current induces heat and vigorous electromagnetic stirring in the molten metal charge.

  Integrated electric controls regulate power, maintain high power factor automatically.

  Monolithic refractory linings are made by ramming against the sturdy water-cooled coil held in a rigid frame of magnetic and structural steel.

  This new principle was perfected in Europe over the last seven years. Over 100 Junker furnaces are now in use. AJAX-JUNKER designs are based on latest experience, using American components and practices throughout.

WHAT IT CAN DO:

- Outstanding results are proven in these fields:

  DUCTILE and ALLOY IRON CASTINGS
  RECOVERY OF IRON TURNINGS
  RECOVERY OF ALUMINUM SCRAP

  Available sizes range from 1 to 10 tons, with normal melting cycles from 2 to 4 hours. Power ratings are 200 kw through 1500 kw.

May We Explore the Possibilities of this New Method with You?

AJAX USA

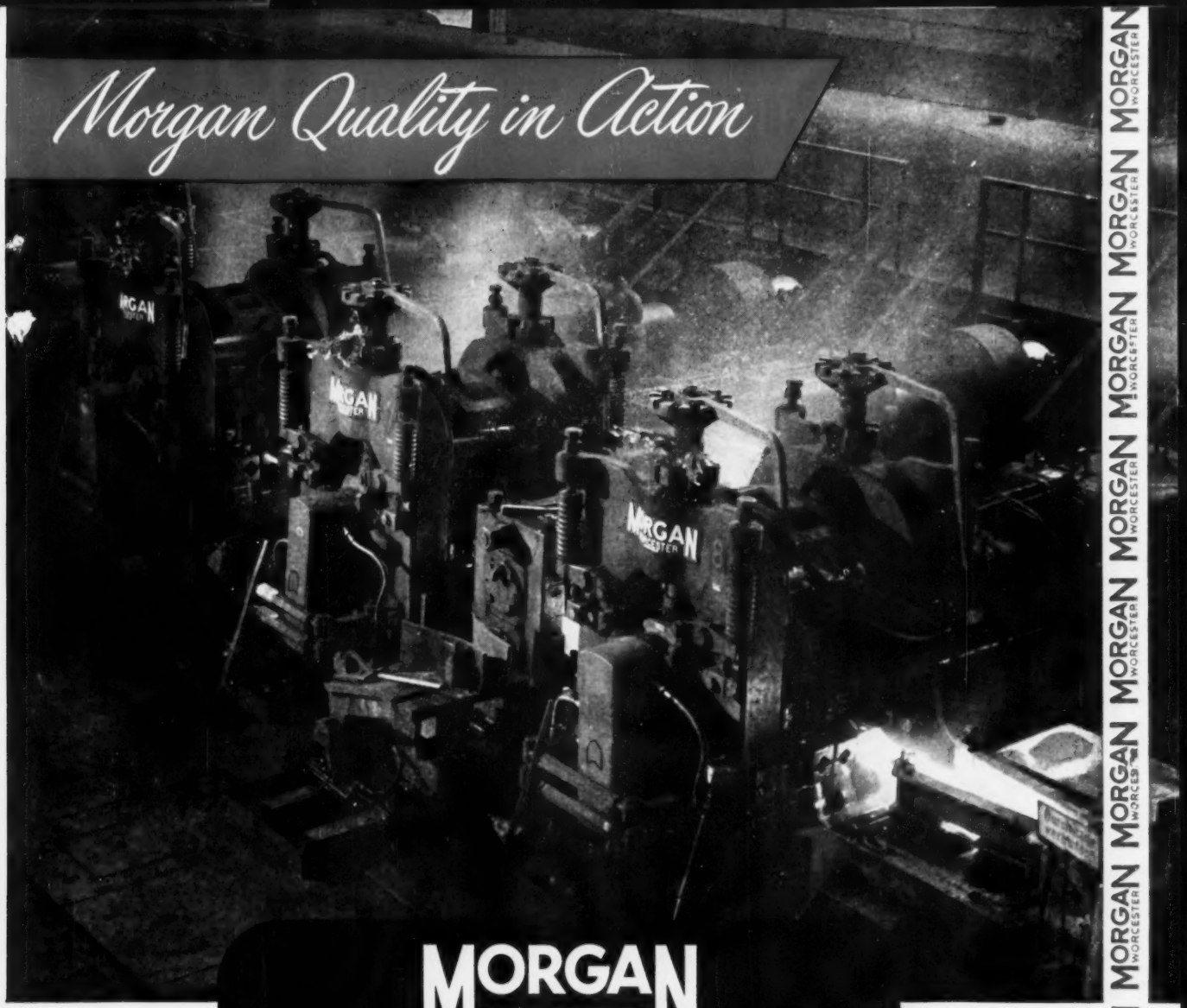
60 CYCLE INDUCTION MELTING

ENGINEERING CORPORATION

TRENTON 7, NEW JERSEY

Associated Companies: Ajax Electrothermic Corporation Ajax Electric Company

Morgan Quality in Action



MORGAN WORCESTER

Billet and Sheet Bar Mill

Osesterreichisch-Alpine Montangesellschaft • Leoben-Donawitz, Austria

Whether abroad or at home in the United States, Morgan Mills are quality engineered and quality built to meet specific needs. Morgan's quality standards mean high production, greater accuracy and low cost per ton. It will pay you to talk to Morgan engineers.

MORGAN CONSTRUCTION CO.

WORCESTER, MASSACHUSETTS

ROLLING MILLS MORGOIL BEARINGS GAS PRODUCERS
WIRE MILLS EJECTORS REGENERATIVE FURNACE CONTROL

RM-67

MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER

MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER MORGAN WORCESTER

Specify Service-Proved Armco ZINCGRIP PAINTGRIP Steel for painted products that must fight rust

It's zinc-protected, workable, ready for paint

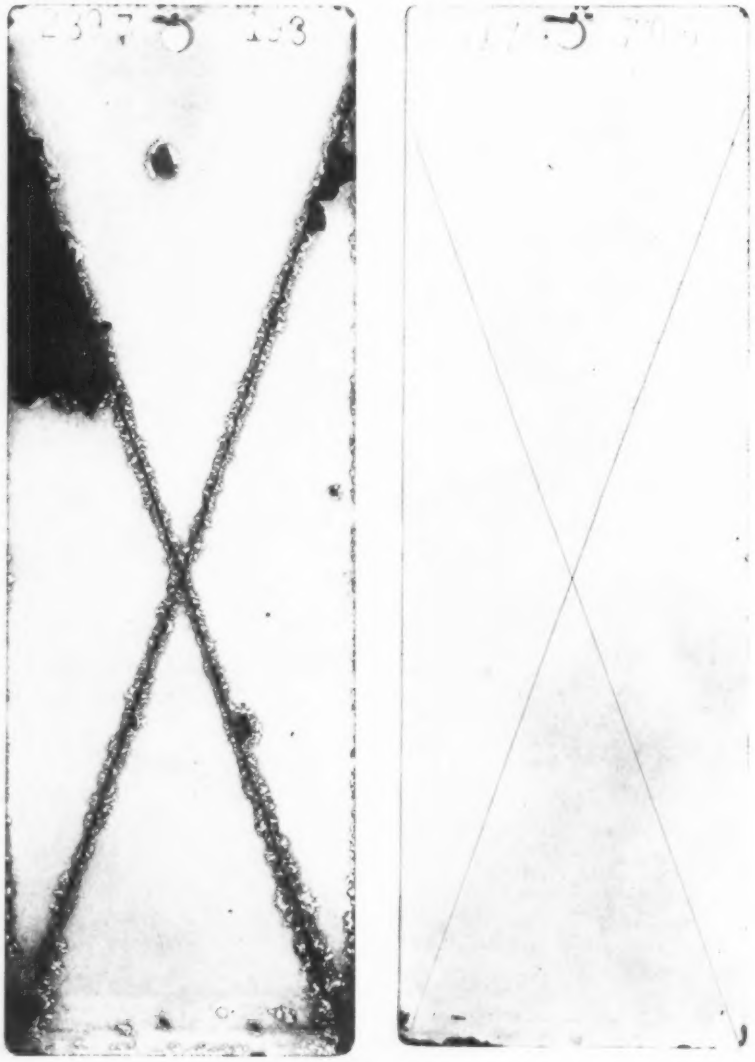
Here's the reason for the 19-year service record of lower manufacturing costs and improved painted products established by Armco ZINCGRIP® PAINTGRIP® Steel:

Since its introduction in 1938, it has offered all the advantages of a workable steel sheet, hot-dip coated with zinc—plus a special mill-Bonderized surface that takes paint immediately, preserves it longer.

Two-step production

1. Form it or draw it. 2. Paint it. The special zinc coating under the mill-Bonderized surface on Armco ZINCGRIP PAINTGRIP flows with the base metal during fabrication. It doesn't flake or peel. Finished products have a smooth, attractive paint finish that lasts longer because paint is completely insulated from the drying action of the zinc coating.

Perhaps Armco ZINCGRIP PAINTGRIP Steel can help you push sales up, hold costs down. Write us today, or call your nearby Armco Sales Office for complete information about this service-proved special steel for painted products.



Here's evidence of the paint-holding qualities of Armco ZINCGRIP PAINTGRIP. Both samples were painted, scratched, and exposed to weather for 18 months. Paint blistered and peeled from the ordinary galvanized steel sample (left). Paint is still held tight by Armco ZINCGRIP PAINTGRIP (right).

ARMCO STEEL CORPORATION

1647 CURTIS STREET, MIDDLETOWN, OHIO

SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

Disarmament Bugaboo: Don't Let It Alarm You

Total defense spending in this country has had a terrific impact on over-all business. To deny this or to overlook it is silly.

Does this mean that American business wants such expenditures if there is another way out? Believe that and you have no faith in our industrial leaders.

Every business man must ponder what effect a real disarmament program would have on him and his company. He is responsible for people, material, investment and the future of his company.

Before we get hysterical about disarmament we'd better start some solid thinking. There is no quick solution to getting along with the Reds. We are not going to sign any scraps of paper presented by the Reds. It's up to them to prove their intent beyond all reasonable doubt.

The naive and at times frustrating optimism that Mr. Stassen has exhibited will not be the final will of this Administration. Not unless Washington has lost its head completely.

Even if we take the most pleasant view possible, disarmament on a grand scale would be gradual. It would not come over night. And it may be years before defense costs can be lowered to more normal proportions.

This country has been sucked in before to premature dismantling of its strength. The resulting gains by the Reds were maddening. It is hardly likely that the Free World will again hand the Communists more people and more countries on a platter.

There is a chance that some day the Reds will crack up. There is a chance that disarmament could be a safe course when and if we get the proper protection against international deceit.

If that happens we will face a task that will require the best of business and government. The transition to a normal, peaceful world would open up a far greater picture and challenge than an armed camp. We would welcome it.

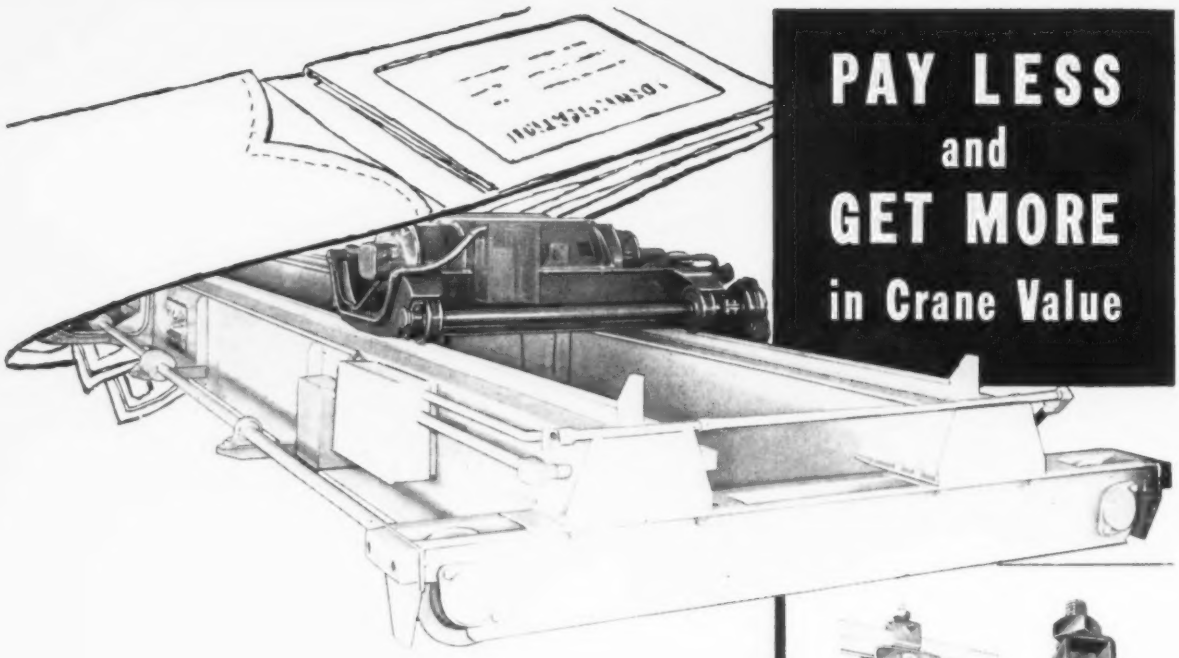
It won't spell depression and mass unemployment as some are thinking. There will be some rough roads but we have traveled much worse.

It will be a long time before we can afford the luxury of honestly thinking about a world not filled with danger of a final holocaust.

When it comes it will be the beginning of a magnificent challenge—a far greater one than we have ever faced.

Tom Campbell

Editor-in-Chief

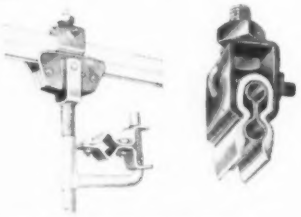


PAY LESS and GET MORE in Crane Value

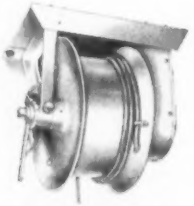
Series "D" 'Load Lifter' Cranes cost less than other brands available for average industrial service. They can be priced substantially lower for two reasons: 1) the use of highly standardized components and 2) mass production methods. More value is built in: they have a combination of design and construction features you would expect only in the most expensive cranes. These features assure completely dependable crane service plus low power consumption and economical maintenance.

Series "D" Cranes operate smoothly. Needless dead weight is engineered out and anti-friction bearings are engineered in wherever practicable to eliminate drag and retard wear. All gearing operates in oil. Comparatively low headroom is combined with high hook lift. The double braking system makes load control accurate and easy. Positive magnetic control is provided for floor and cage controlled types. A three-girder bridge is standard for spans under 40 feet; box-section welded girders for spans up to 80 feet. No whipping or skewing.

Series "D" Cranes fit the job — and your pocketbook. Capacities range from 1 to 20 tons. Selection is easy. No complex calculations. Write for Catalog 221. Then pick out the size, type, trolley style, span and other requirements and place your order.



INSUL-8-BAR CONDUCTOR SYSTEM. A low-cost, flexible system. Enclosed, insulated. Always dependable, indoors or out. Assures complete safety, higher plant efficiency, lower maintenance costs. Trolleys are shoe type. Easy, fast and inexpensive to install, with simple tools. Write for Bulletin M83.



"SHAW-BOX" CABLE REEL. Constructed to eliminate spring breakage. Automatically keeps insulated conductor cable taut. Used on crane and hoist magnets, on soaking pit carriages, rolling mill machinery, machine tools. Available with 50 and 90 lb. pull; drums to wind up to 120 ft. of cable. Write for Bulletin 368.

57D-5

MANNING MAXWELL & MOORE INC. M&M TRADE MARK

'Load Lifter'® CRANES

MANNING, MAXWELL & MOORE, INC.

SHAW-BOX CRANE & HOIST DIVISION

382 West Broadway • Muskegon, Michigan

Builders of "SHAW-BOX" and 'LOAD LIFTER' Cranes, 'BUDGIT' and 'LOAD LIFTER' Hoists and other lifting specialties. Other Divisions produce 'ASHCROFT' Gauges, 'HANCOCK' Valves, 'CONSOLIDATED' Safety and Relief Valves, 'AMERICAN' and 'AMERICAN-MICROSEN' Industrial Instruments, and Aircraft Products.

In Canada: *Manning, Maxwell & Moore of Canada, Ltd., Avenue Road, Galt, Ontario*

Success In Business

Sir—Your very excellent magazine is "must" reading for me, and I often photostat articles and editorials that certain others may read them who might not be interested in the rest of the magazine.

In the July 4 issue articles, "Success in Business Takes More Than Urge to Get Ahead," by Benjamin F. Fairless is especially good. It is almost a sermon, and I would like to have many others read it.

I would greatly appreciate receiving two copies, but, if you can spare a dozen, I can assure you they will be placed where they can do some good.—J. G. Oetzel, Vice Pres., Engineering, Warner Electric Brake & Clutch Co., Beloit, Wis.

▪ A dozen copies are on the way. —Ed.

Sir—I would very much appreciate receiving a reprint of the article, "Success in Business Takes More Than Urge to Get Ahead," which appeared in the July 4 issue of THE IRON AGE and written by Benjamin F. Fairless, former Chairman of this corporation. The writer was secretary to Mr. Fairless for some years before he became chairman of the board.—E. T. Snedecor, Secretary to President, U. S. Steel Corp., New York, N. Y.

Depreciation

Sir—Please send me four reprints of the article, "Let's Make Sense in Our Depreciation Policies", which appeared in the June 6 issue.

After reading this expertly written article, one would necessarily agree that Joel Barlow "is more than well grounded in the tax and depreciation problems of the metalworking industry."—J. H. Bruckner, Administrative Counsel, The Carlton Machine Tool Co., Cincinnati, Ohio.

Sir—We have read with great interest your June 6 issue of THE IRON AGE in which there was a very informative discussion of depreciation policies by Joel Barlow.

We also note that reprints of this article are available and if we might have 15 copies of it, we would very much appreciate your sending them to us.

We would like to tell you also that we find THE IRON AGE most helpful to us in our efforts to keep abreast of the business situation in general.—K. C. Horrall, Investors Service Dept., J. A. Hogle & Co., Los Angeles, Calif.

▪ Reprints are on the way.—Ed.

Refractory Cement

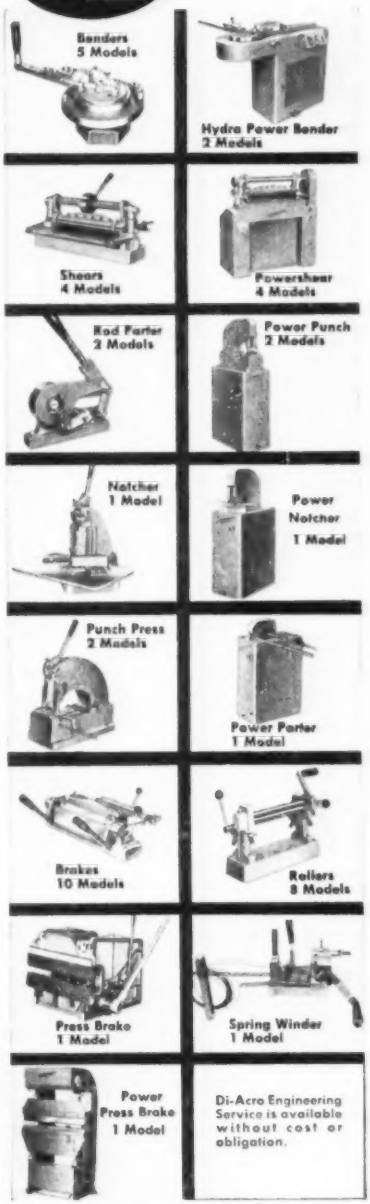
Sir—On p. 49 of the June 20 issue of THE IRON AGE, there appears an item entitled "Holds Tight, Hot or Cold". Can you furnish us further information as to the source of the new refractory cement?—C. J. Oxford, Jr., Director of Research, National Twist Drill & Tool Co., Rochester, Mich.

▪ Write to the Charles Englehard Inc., 850 Passaic Ave., East Newark, N. J.—Ed.

"Sure, I promised the suit for today, but well, we know how it is, don't we, Senator?"

Speed FORMING and FABRICATING

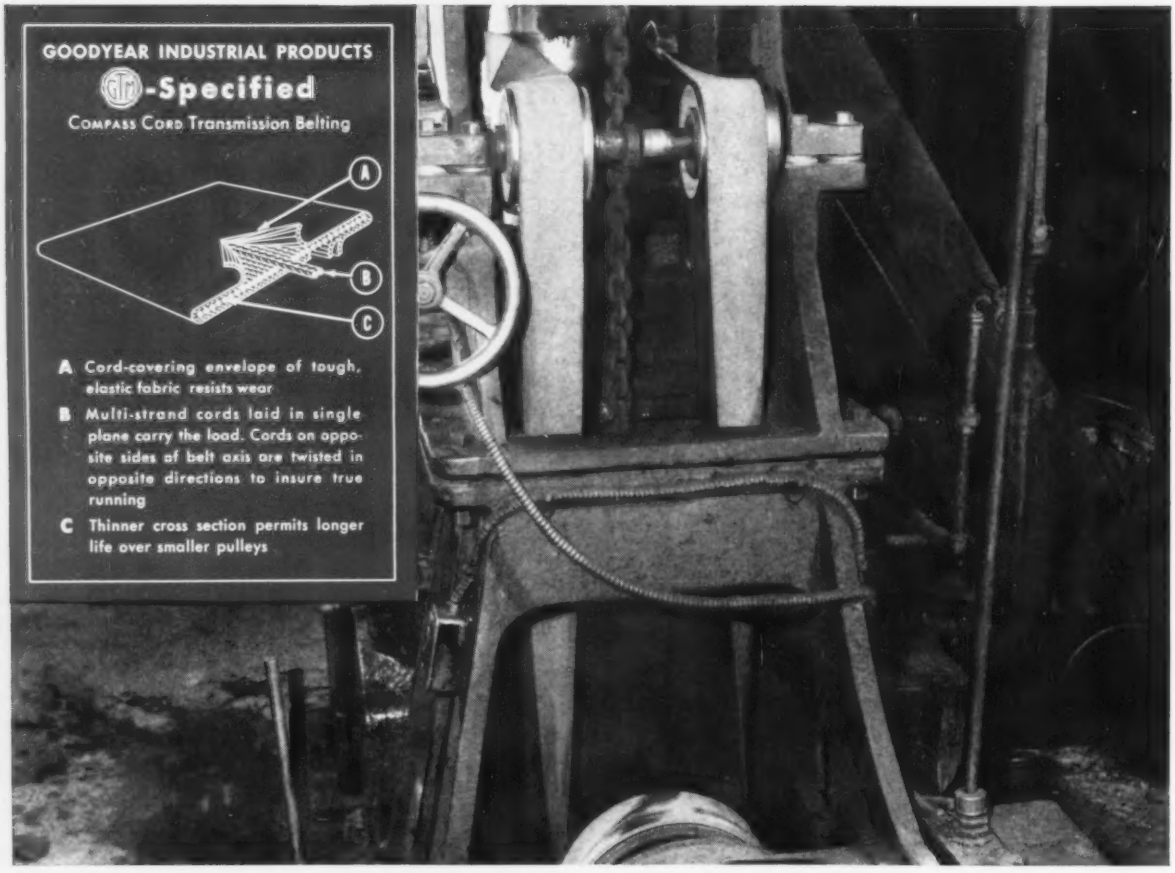
di-acro PRECISION METALWORKING MACHINES for die-less duplicating


Benders 5 Models
Hydra Power Bender 2 Models
Shears 4 Models
Powershear 4 Models
Rod Forter 2 Models
Power Punch 2 Models
Notcher 1 Model
Power Notcher 1 Model
Punch Press 2 Models
Power Forter 1 Model
Brakes 10 Models
Rollers 8 Models
Press Brake 1 Model
Spring Winder 1 Model
Power Press Brake 1 Model
Di-Acro Engineering Service is available without cost or obligation.

New 36 page catalog . . . packed with time saving "Die-Less Duplicating" techniques

Bending Manual gives exact methods for bending a variety of materials.

O'NEIL-IRWIN MFG. CO.
302 8th Ave. • Lake City, Minn.


GOODYEAR INDUSTRIAL PRODUCTS
G-Specified
COMPASS CORD Transmission Belting
A
B
C
A Cord-covering envelope of tough, elastic fabric resists wear
B Multi-strand cords laid in single plane carry the load. Cords on opposite sides of belt axis are twisted in opposite directions to insure true running
C Thinner cross section permits longer life over smaller pulleys

Weathers rough grind for 3 years—not 3 months

Belting the rough ball-bearing grinders used by this New England firm is no cinch. They have a tough combination of horizontal and vertical drives. And each belt must make two quarter turns. So it's easy to see why previous belts stretched and slipped—had to be replaced in as little as 1 month, never went much more than 3.

But the G.T.M.—Goodyear Technical Man—had a suggestion: his COMPASS CORD Transmission Belt. It's sinewed with endless load-carrying cord—has a thin cross section for longer life over small pulleys. Result: the G.T.M.'s highly stretch-resistant belt *ended take-up problems—minimized maintenance—boosted belt life a phenomenal 3 years or better.*

And that's typical of the G.T.M.'s success in belting the high costs out of vital production operations. To cash in on his unique moneysaving abilities—wherever industrial rubber products are used—contact your Goodyear Distributor—or write Goodyear, Industrial Products Division, Akron 16, Ohio.

COMPASS CORD BELT by

GOODYEAR

THE GREATEST NAME IN RUBBER

Compass—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*

FATIGUE CRACKS

Death And . . .

You never know these days who's going to walk in your front door with a story. Now take tax examiners, for instance. One of Uncle Sam's unsuspecting tax sleuths paid a visit to editor-in-chief Tom Campbell not too long ago. Little did he know that while he was pouring over Tom's records, Tom was fitting him into a real-life story for THE IRON AGE. You'll learn what to do when the tax man comes, courtesy Tom Campbell, beginning on page 74. Incidentally, the chief says he came off better than expected.

Machining Dollar

Production machining of one particular material or part sounds easy. After all, it's a routine job if you start with the right combination of conditions. But unfortunately, this isn't the kind of machining that's done in thousands of plants.

Different Methods—Changing from one material to another is only one problem. Other headaches come with each job. There are, for example, the different machining processes to consider. Also, the selection of the right feeds, speeds, coolants, and other variables. It's at this point that the machining of any one part can become a pretty scrambled picture.

That's where next week's "Metalworking Dollar" series article on machining will serve as a handy guide.

Quick Reference—It takes each machining process through the "whys" and "wherefores" of good practice. And it'll be set up as a quick reference for the machine operator, the supervisor, the engineer or any other person who's concerned about getting the most for every dollar spent for machining. Look for the "Machining Dollar" article in our July 25 issue.

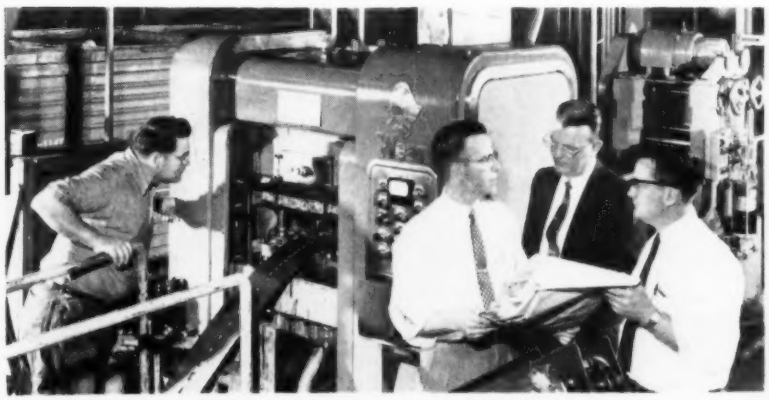
Men And Machines

There's always more to the story of a new production advance than the machines in the line. More important are the men behind it.

This is particularly true in the case of this week's cover story on continuous press forming (see p. 111) at GM's Fisher Body Div. plant at Grand Blanc, Mich.

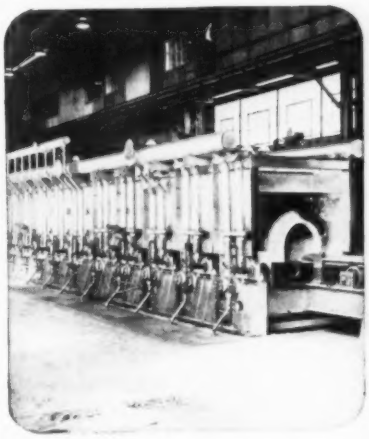
First there are the engineers from GM and supplier companies who designed and set up the line. And then there are the men who must prove it out in production.

Some of them are shown on this week's cover. From right to left they are: William P. Pountney, foreman—metal assembly; William T. Rebholz, plant superintendent; Robert H. Enskat, superintendent—metal assembly, and press operator Richard L. Fittinger.



MEN AT WORK: Chrysler engineers check out details on new press line.

SPEED HEATING
SAVE SPACE
IMPROVE QUALITY
WITH HI-HEAD



R-S HI-HEAD HEATS 25 TONS SLAB PER HOUR . . 75% LESS FLOOR SPACE . . ONE FOURTH LABOR

Now, heating of 25 tons of stainless steel slabs per hour is a continuous operation at Atlas Steels Ltd. The R-S Hi-Head Furnace reaches a high heat fast and maintains it uniformly in all parts of the furnace for the complete cycle. Heating time is reduced . . . there is no overheating of slab edges . . . and uniformity is assured on every piece. Labor is one-fourth that required on conventional furnaces. Floor space used is 75% less.

You can boost your "Quality Quota" if you heat with R-S Furnaces. For full technical details on faster slab heating write for the folder "Continuous Slab Heating."

R-S FURNACE CO., INC.
Philadelphia 44, Pa.

Car Hearth Furnaces
Continuous Furnaces
Rotary Hearth Furnaces

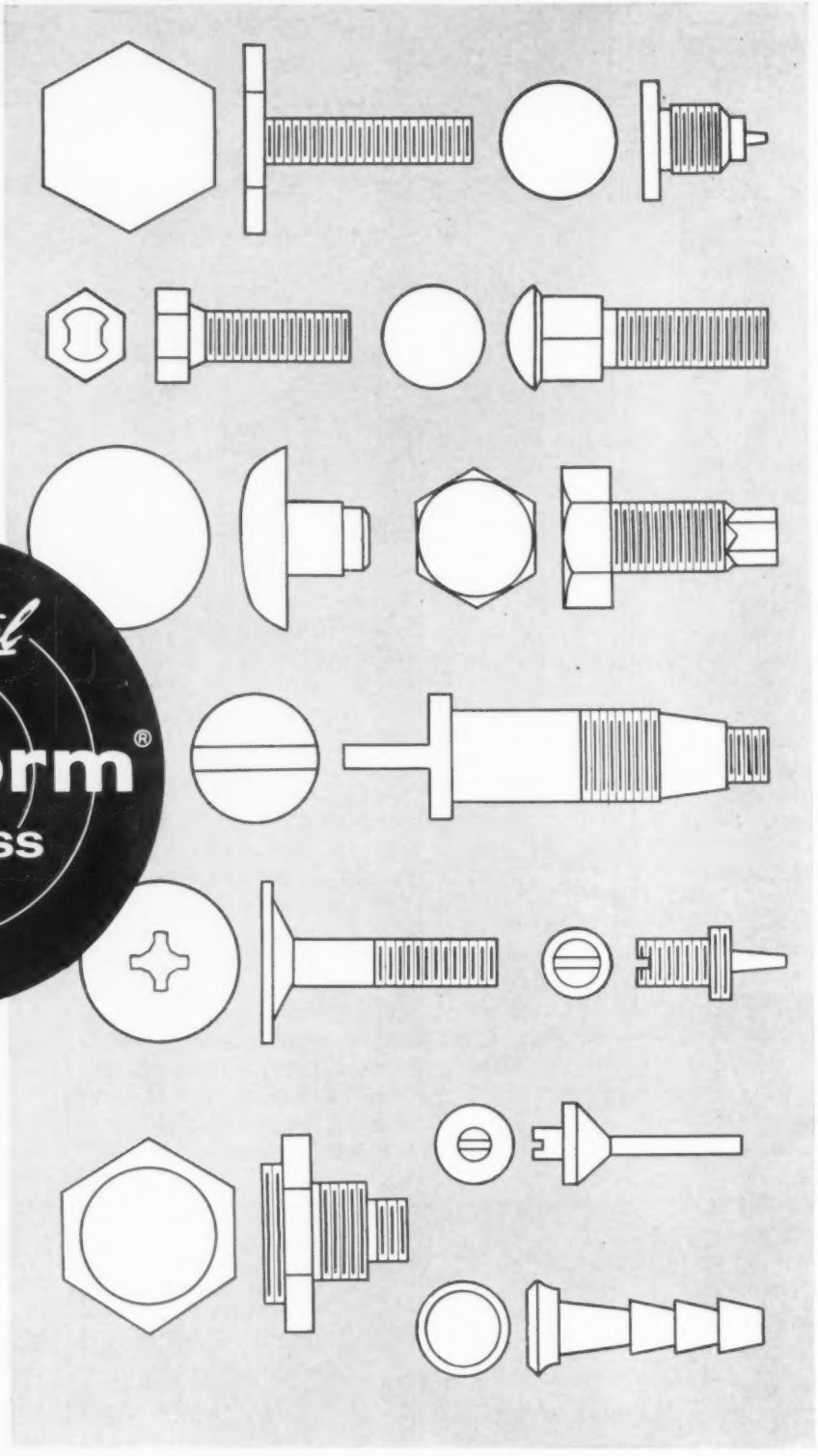
IHEA

R-S FURNACES

Extending
high production
advantages to an

unlimited new range

of specifications
in fasteners and
allied products



Continental Co-form® PROCESS

If you use machined parts like these, — the *new* Continental CO-FORM Process offers you unlimited benefits in design simplification, production speed, dimensional precision, improved product strength, and sharp, clean contours. For full information, write: Continental Screw Co., 450 Mt. Pleasant St., New Bedford, Mass.

CONTINENTAL
SCREW COMPANY • NEW BEDFORD, MASS.
HOLTITE FASTENERS

MEMBER
SCREW RESEARCH
ASSOCIATION

EXHIBITS, MEETINGS

Packaging & Handling Show—Oct. 28-31, Atlantic City. (SIPMHE, One Gateway Center, Pittsburgh 22.)

Metal Show—Nov. 2-8, Chicago. (American Society for Metals, 7301 Euclid Ave., Cleveland 3.)

JULY

National Tool & Die Manufacturers Assn.—Summer meeting, July 24-27, Grove Park Inn, Asheville, N. C. Society headquarters, 907 Public Square Bldg., Cleveland.

AUGUST

Society of Automotive Engineers—West Coast meeting, Aug. 12-15, Olympic Hotel, Seattle. Society headquarters, 485 Lexington Ave., New York.

American Institute of Electrical Engineers—Pacific general meeting, Aug. 28-30, Chinook Hotel, Yakima, Wash. Society headquarters, 33 W. 39th St., New York.

SEPTEMBER

National Metal Trades Assn.—Eastern plant management conference, Sept. 8-11, Essex - Sussex Hotel, Spring Lake, N. J. Society headquarters, 337 W. Madison St., Chicago.

American Mining Congress—Metal mining and industrial minerals convention, Sept. 9-11, Hotels Utah & Newhouse, Salt Lake City, Utah. Society headquarters, 1200 18th St., Washington, D. C.

Instrument Society of America—12th annual instrument-automation conference and exhibit, Sept. 9-13, Cleveland Auditorium, Cleveland. Society headquarters, 313 Sixth Ave., Pittsburgh.

National Petroleum Assn.—Annual meeting. Sept. 11-13, Traymore Hotel, Atlantic City. Society headquarters, 958 Munsey Bldg., Washington.

Marking Device Assn.—National meeting, Sept. 19-20, Roosevelt

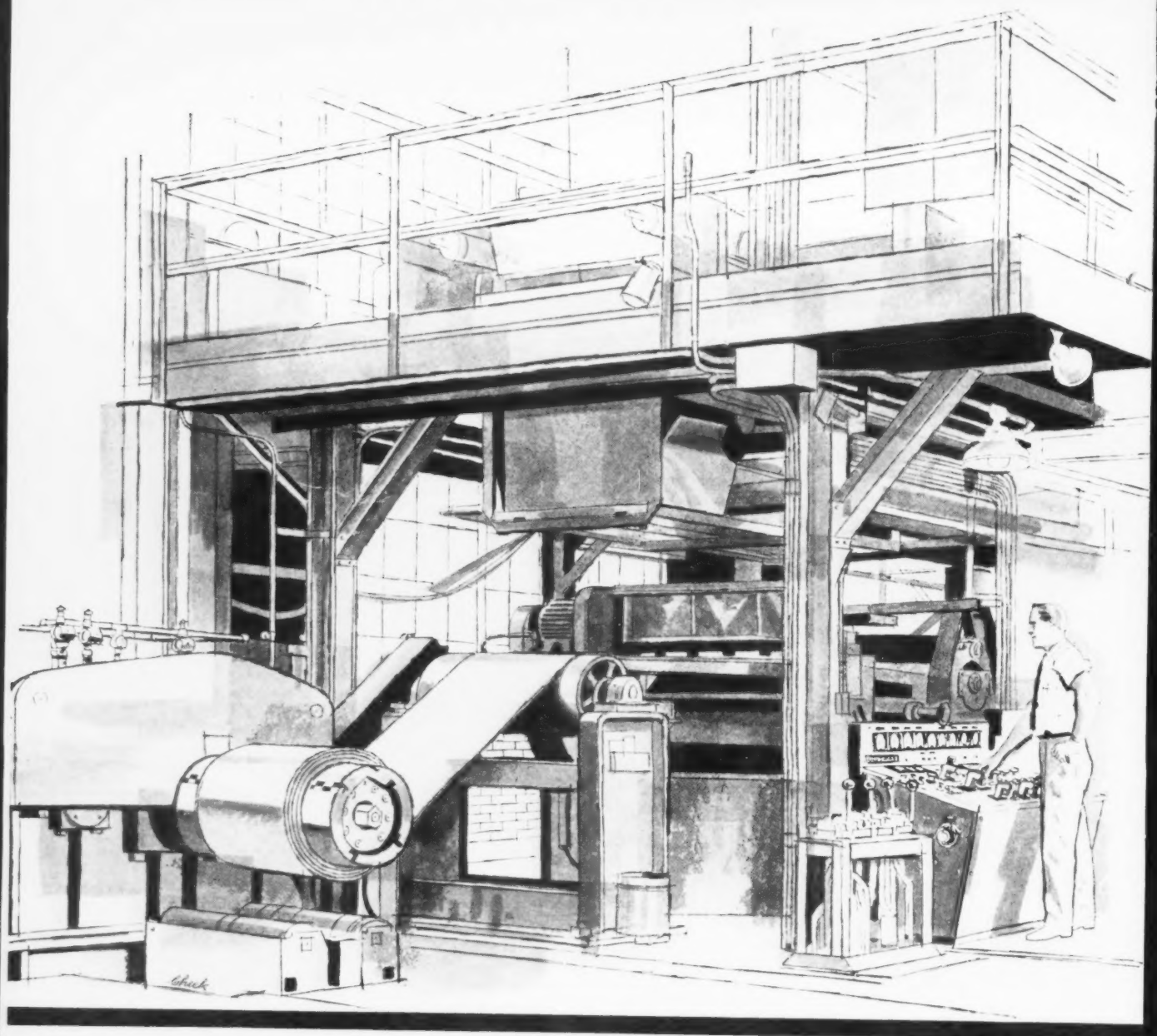
(Continued on P. 16)

Stop Oil Bath Air Filter Fires Fast!

Custom-engineered for extra-dangerous hazards like spray booths, dip tanks and electrical equipment, the Kidde automatic carbon dioxide extinguishing system gives you the fastest, safest 'round-the-clock fire protection ever made! All operating parts completely enclosed for safety. No falling weights, no clumsy mechanical triggering methods. Self-contained, no outside power needed. Visual indicators to show if system is set or released. Easy testing of all operating parts. No parts to replace after operation or test. Clean, non-electrical conducting carbon dioxide gas snuffs fire out in seconds, vanishes into thin air. Leaves no mess, won't harm machinery. Write for Kidde's automatic carbon dioxide fire extinguishing systems booklet today.

Kidde (K Kidde) **Walter Kidde & Company, Inc.**
749 Main St., Belleville 9, N. J.

Walter Kidde & Company of Canada Ltd., Montreal — Toronto



ALLIS-CHALMERS

CONTROL...

from furnace to finish

Here's positive tension control for your annealing line

For the annealing line, control by Allis-Chalmers features power-type magnetic amplifier regulators assuring accurate speed control and the most modern tension regulation. Engineered to work with this control are Allis-Chalmers motors and generators.

Allis-Chalmers builds control for every steel-making operation . . . right through the main mill to finishing. This overall system responsibility means just the *right* control for *each* job.

Here's why: Allis-Chalmers engineers first developed heavy duty control for main mill drives. Then, using the same quality components, they designed customized control for processing lines. The result — a complete line of control built to work throughout your mill with ultimate accuracy and dependability.

That's why Allis-Chalmers control is gaining more and more acceptance in the mills. Contact your A-C representative or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

A-5449

here are the facts about smoke and fume control

1

There is no simple method of control

Unfortunately, there is no magic powder for controlling smoke and fumes. It has taken many years of research and engineering experience to produce effective air pollution control equipment. Don't be fooled. There are no simple, and effective devices for controlling smoke and fumes.

2

Get the proper equipment for your problem

There are many different types of air pollution control equipment. Bag houses, scrubbers, after burners, centrifugal cleaners, catalytic burners and electrostatic precipitators. Many are good only for specific applications. The electrostatic precipitator is noted for its exceptionally wide range of application.

3

Don't buy operation and maintenance problems

The Smokatron Electrostatic Precipitator is, by nature, easy to operate and maintain. It can be put into operation immediately with the push of a button and will remain efficient and trouble-free through the years.

4

SMOKE ORDINANCES ARE GETTING STIFFER

Local ordinances regulating air pollution are getting "teeth." Get all the facts before you purchase any air pollution control equipment. The machine you buy today may not be allowed under the more stringent controls of tomorrow. Smokatron is guaranteed effective.

SMOKATRON IS ENGINEERED FOR YOUR NEEDS

The Smokatron Electrostatic Precipitator shown here was designed to eliminate the smoke and odor resulting from the continuous burning of auto bodies. Our deferred payment plan may put a Smokatron in your future.

Call or Write For Free Engineering and Estimate Service

SMOKATRON

Smokatron Division
Summer & Co.
555 Buttles Ave.
Columbus, Ohio

EXHIBITS, MEETINGS

Continued from P. 13

Hotel, New Orleans. Society headquarters, 912 Chicago Ave., Evanston, Ill.

Steel Founders' Society of America—Fall meeting, Sept. 23-24, The Homestead, Hot Springs, Va. Society headquarters, 606 Terminal Tower, Cleveland.

The American Society of Mechanical Engineers—Fall meeting, Sept. 23-25, Statler Hotel, Hartford, Conn. Society headquarters, 1010 Empire Bldg., Pittsburgh.

Standards Engineers Society—Sixth annual meeting on standardization — economy through application Sept. 23-25, Hotel Commodore, New York. Society headquarters, P. O. Box 281, Camden, N. J.

Assn. of Iron & Steel Engineers—Annual convention, Sept. 23-26, Penn Sheraton Hotel, Pittsburgh. Society headquarters, 1010 Empire Bldg., Pittsburgh.

American Hot Dip Galvanizers Assn.—Semi-annual meeting, Sept. 26-27. Netherland - Hilton Hotel, Cincinnati. Society headquarters, 1806 First National Bank Bldg., Pittsburgh.

OCTOBER

The Electrochemical Society — Semi-annual meeting, Oct. 6-10, Statler Hotel, Buffalo. Society headquarters, 216 W. 102nd St., New York.

American Institute of Steel Construction — 35th annual meeting, Oct. 6-11, Hotel del Coronado, Calif. Society headquarters, 101 Park Ave., New York.

American Society of Lubrication Engineers—Fourth conference, Oct. 7-9, Royal York Hotel, Toronto, Ont., Canada. Society headquarters, 84 E. Randolph St., Chicago.

Committee on Vacuum Techniques—Fourth annual symposium on high vacuum technology, Oct. 9-11, Hotel Somerset, Boston. Society headquarters, Box 1282, Boston.

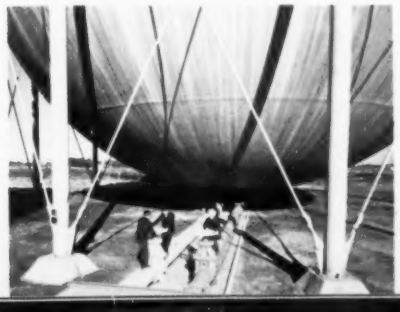
IN TOKYO, JAPAN

WORLD'S LARGEST USS "T-1" STEEL PRESSURE VESSELS

Beyond the Shinto shrine are the two USS "T-1" Steel spheres. They are being used by Tokyo Gas Works, Ltd., for the storage of natural gas at a pressure of 71.1 psi.

Lightweight construction—made possible by USS "T-1" Steel—cut shipping, handling and erection costs of these giant pressure vessels.

Thinner walls meant less weld metal required, less erection time needed. Lightweight construction also reduced amount and expense of foundation.



COMPARED TO CARBON STEEL CONSTRUCTION, the use of USS "T-1" Steel saved 1,720 tons of steel in the two giant pressure vessels pictured here. Having a diameter of 110.5 ft. each, they are the largest Hortonspheres ever built for the storage of gas. USS "T-1" Steel enabled Chicago Bridge & Iron Company to use 0.73-inch-thick shell plates rather than mild steel plates 1.75 inches thick.

USS "T-1" Steel's very high yield strength (90,000 psi minimum), plus previous experience in building non-code government vessels, permitted use of a maximum allowable working stress of 36,000 psi to which a 90% weld joint efficiency was applied. With the exception of the working stress values, the vessels were built to the ASME Code for Unfired Pressure Vessels where applicable.

In addition to saving 1,720 tons of steel, the thinner USS "T-1" Steel plates drastically lowered the cost of shipping to Japan. And each ton saved meant lower erection, welding and foundation costs. Added up, all these savings point out why the use of USS "T-1" Steel spells economy.

Shell plates were fabricated at CB&I's Greenville, Pa. plant and shipped to Tokyo for field erection. Field welding was done with E 12016 electrodes and did not require stress relief. All welds were 100% X-rayed.

Two additional vessels of similar design, but smaller in size, are now being fabricated by Chicago Bridge & Iron for installation in Tokyo.

USS "T-1" Steel is being used to improve performance and reduce costs in a wide variety of applications in steel mills, in mining equipment, in construction equipment, in materials handling equipment, in bridges, and even in steam turbines. Write for complete information about its application and fabrication. United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

USS "T-1" CONSTRUCTIONAL ALLOY STEEL

"USS" and "T-1" are registered trademarks

UNITED STATES STEEL

Watch the **United States Steel** Hour on TV every other Wednesday (10 p.m. Eastern time).

USS

"These rings were expanded 30 per cent...cold"

says **Robert Leith,** *Division Metallurgist at U. S. Steel's Homestead Forgings Division*

The forged rings in the picture will be installed near the ends of a rotor on a very large generator and are used to retain its copper coils. The rings are *non-magnetic*, thereby reducing flux leakage that will heat the ends of the stator coil and stator windings. Thus, you end up with a more efficient generator when you design it with these non-magnetic coil support rings.

To produce non-magnetic rings, an austenitic manganese-nickel-chromium steel was used for these USS Quality Forgings. But, since this austenitic steel cannot be heat-treated to the required strength levels of 150,000-160,000 psi tensile strength, the rings were *cold-expanded* to obtain the required properties.

This cold-expansion process requires extreme care and skill, especially when you consider that the rings are expanded as much as 30 per cent. Intricate tooling setups were required and we called on the finest talents of our staff at the Homestead Forgings Division.

As much as anyone else, Robert Leith keeps a close eye on these USS Quality Forgings as they are produced. He supervises a metallurgical staff of nine and an inspection staff of 17. It is fitting that he is in charge of these two groups, because Mr. Leith has spent 16 years in the Homestead Forgings Division—six in inspection, 10 in metallurgical. Few men anywhere are more qualified to determine the quality of forged steel products.

There's a good chance you're not interested in non-magnetic retaining rings—but no matter what kind of forging you buy from United States Steel, you can be sure that money won't buy anything better. Please address inquiries or requests for our free 32-page forgings booklet to United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

USS
QUALITY
FORGINGS

heavy machinery parts . . carbon, alloy, stainless
forged steel rolls and back-up roll sleeves
electrical and water wheel shafts
specialty forgings of all types

UNITED STATES STEEL

SUBSTANTIAL TIME AND COST SAVINGS resulted from the installation of Lumnite-Crushed Firebrick concrete in the flues of open-hearth furnaces, John A. Roebling's Sons Corporation steel plant, Roebling, New Jersey. Since Lumnite-made concrete was substituted four years ago, trouble-free service has resulted.

Flue construction and installation is easier with refractory concrete made of ATLAS LUMNITE* Cement

- Lumnite-made refractory concrete has greater resistance to thermal shock, to volume changes and severe service conditions.
- Repairs and downtime are reduced to a minimum.
- Placement is fast and easy – service strength is reached within 24 hours.

For maximum convenience, use Lumnite-made castables. These are packaged mixtures, ready for use. Just add water, mix and place. Made and distributed by leading manufacturers of refractories.

For more information, write: Universal Atlas, 100 Park Avenue, New York 17, New York.

* **"LUMNITE"** is the registered trademark of the calcium-aluminate cement manufactured by Universal Atlas Cement Company.

L-152

UNIVERSAL ATLAS CEMENTS

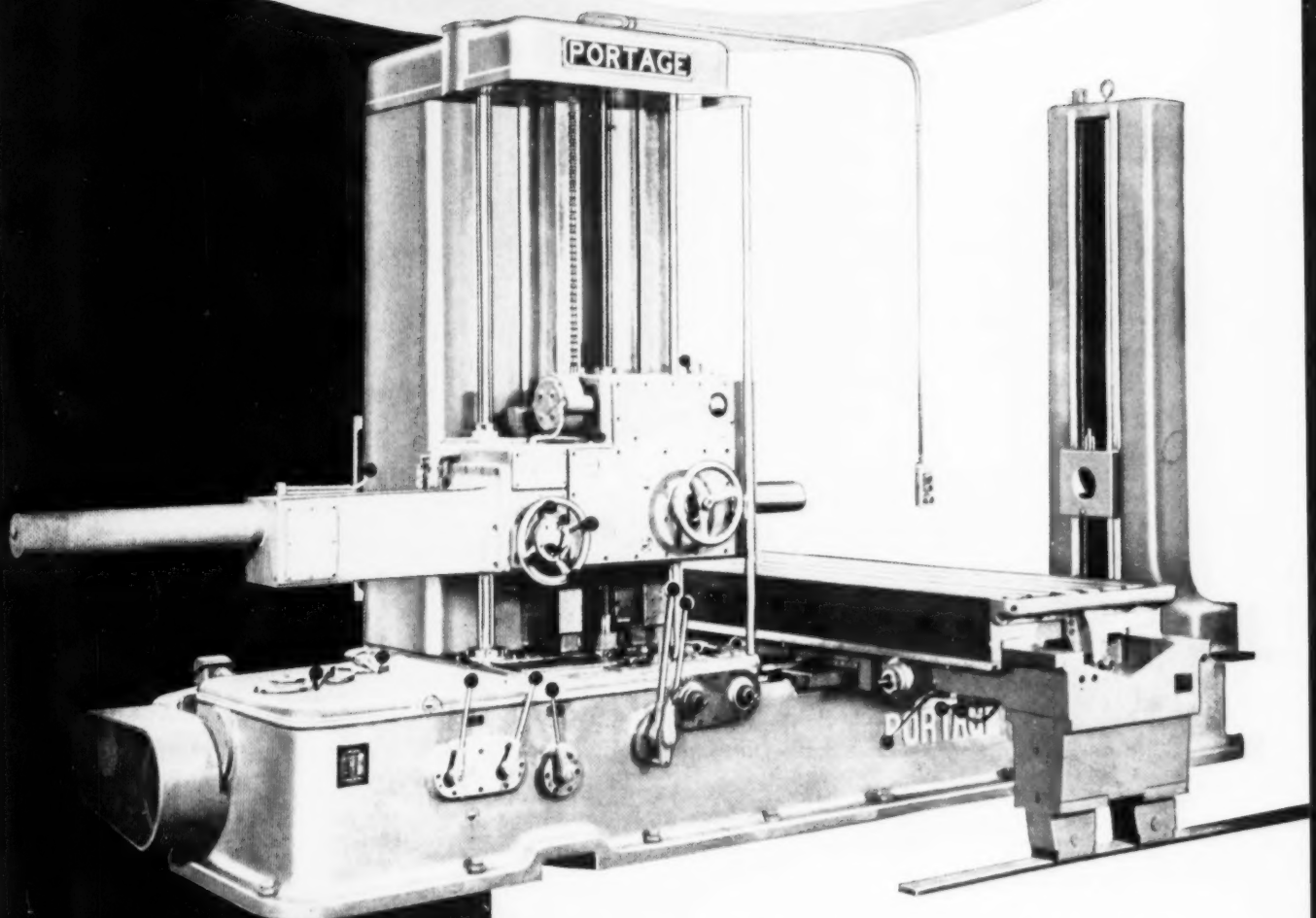
USS

UNIVERSAL ATLAS CEMENT COMPANY—member of the industrial family that serves the nation—**UNITED STATES STEEL**

OFFICES: *Albany · Birmingham · Boston · Chicago · Dayton · Kansas City · Milwaukee · Minneapolis · New York · Philadelphia · Pittsburgh · St. Louis · Waco*

PORTAGE *Announces...the*

NEW LOOK



The new PORTAGE No. 4 Horizontal Boring, Drilling and Milling Machine has a complete NEW LOOK. A heavier base, column, saddle and head are a few of the new features. The overall "beefed up" machine offers a wider range of versatility. NOW... you can handle the larger work . . . with the smallest possible capital investment. Write for complete information.

THE *Portage* MACHINE CO.

1035 Sweitzer Avenue • Akron 11, Ohio

Representatives in Principal Cities

BUILDERS OF PRECISION MACHINE TOOLS, SPECIAL AND PRODUCTION MACHINERY SINCE **1916**

it's NEW!
it's PNEUMATIC!
IT'S THE FIRST OF ITS KIND...

Combines two functions in one tool. Rapid and efficient tensioning and cutting.

Brainard's New Pneumatic Stretcher and Cutter for Heavy Duty Strapping . . . . .

. . . offers these *Advantages*

- ★ Only Pneumatic Heavy Duty Strapping tool of its kind.
- ★ Specially designed for heavy duty strapping on pallets, skids, car bracing, and large bundles.
- ★ Pneumatic power insures uniform tension on each band.
- ★ Pneumatic power does the work. Eliminates operator fatigue.
- ★ Rugged construction assures minimum down time for tool maintenance.
- ★ Tool is light weight and portable.
- ★ Because of less operator fatigue, tool is more productive during work shift.
- ★ Operates on any flat stock or flat package.

Brainard Steel Strapping

SHARONSTEEL

Brainard Steel Division, Sharon Steel Corporation
Griswold Street, Warren, Ohio

and THAT'S ONLY PART OF OUR STORY...

Brainard Integrated Production Insures a Constant *Supply* of Heavy Duty Strapping

As a division of Sharon Steel, Brainard can be sure that the steel used for strapping has been developed to meet their own exacting standards, and, more important, they can assure the customer of a constant supply of strapping in all heavy duty sizes and gauges: 2″ x .050, 1¼″ x .050, ¾″ x .050, 1¼″ x .035, ¾″ x .035, ¾″ x .028.

SPECIAL HEAVY DUTY STRAPPING SERVICE

Brainard has a team of specialists in the use of heavy duty strapping for steel mills, car-loading, palletizing, etc. Why not contact Brainard and ask about this service?

Brainard Steel Strapping
Griswold Street, Warren, Ohio

Please send more information about Brainard's complete strapping service.

NAME .....

COMPANY .....

CITY ..... STATE .....

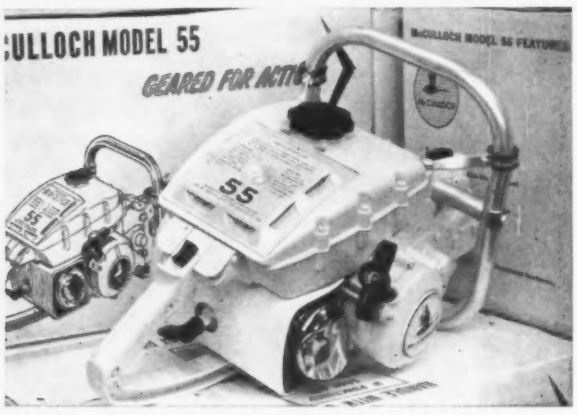
PHONE .....

"We switched over to Columbia-so far we've saved $2,100

says Mr. Bernard Rosebrough
Plant Engineering Project Coordinator
McCulloch Motors Corporation
Los Angeles 45, California

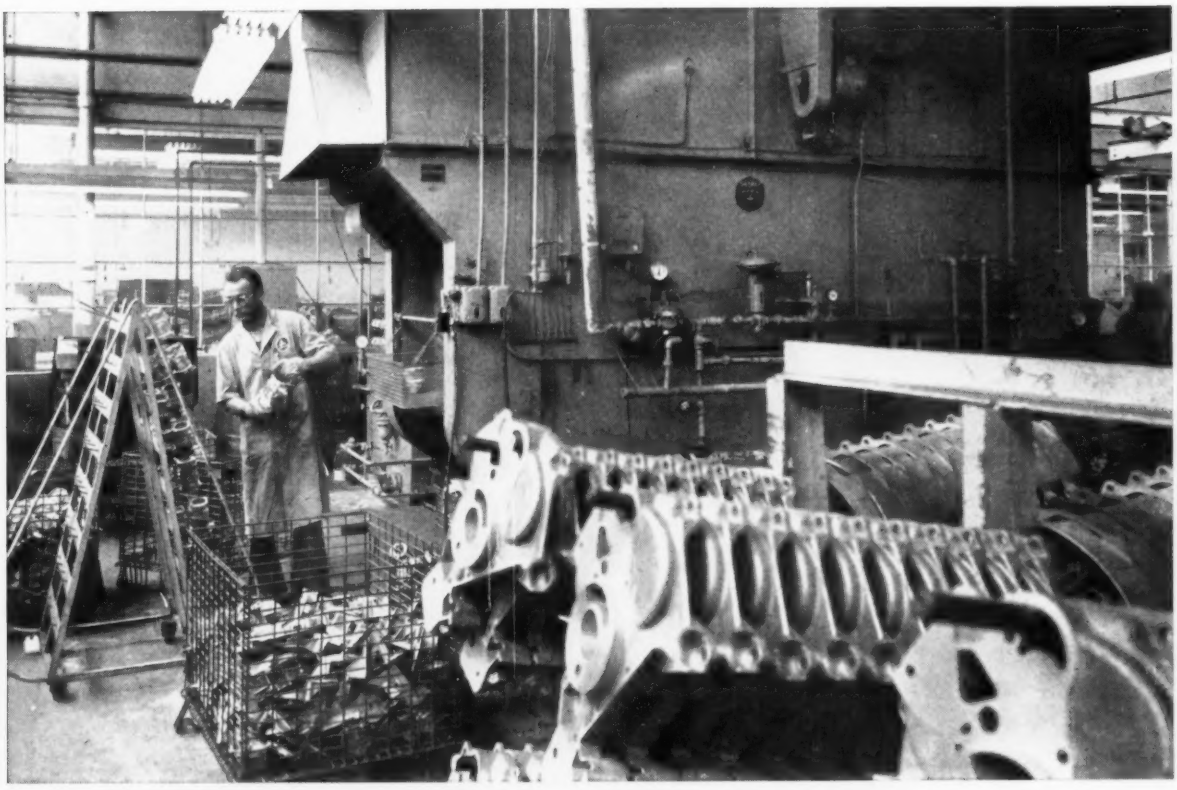
"We'd tried four other degreasing solvents, so I have a real basis for comparison. For example, in the 22 weeks since putting in Columbia-Southern Trichlorethylene, we've cleaned out each of our six units just once. With all the other solvents used, our degreasers needed cleanout and fresh solvent every three weeks. We now make one changeover, instead of eight for the same period. Our net savings on man-hours for maintenance alone, without counting loss of production, adds up to $2,100.

"Here's the plant, at 6101 West Century Boulevard. We produce our own line of McCulloch Chain Saws, Scott-Atwater Outboard Motors, Superchargers for custom cars, and four-cylinder drone engines for military target ships.



"This is the Model 55, one of our most popular chain saws. We run magnesium, aluminum and steel parts through the degreasers in producing all of our saws and other products. That's one reason why we insist on high solvent uniformity and purity.

Southern Trichlor 22 weeks ago—just on maintenance alone!"



"Here's the 'big boy' of our six degreasing units. It's part of our sub-assembly operation. You can imagine what happens to production when it's shut down for cleanout. Figure two men for 16 hours to do a complete drain, clean, refill—see why I like a solvent that keeps a degreaser like this in action? Another big point. A year ago we had a fire in this unit that caused more than $6,000 damage. We believe that Columbia-Southern Trichlorethylene's stability makes it a safer solvent, and reduces fire hazard to a minimum.

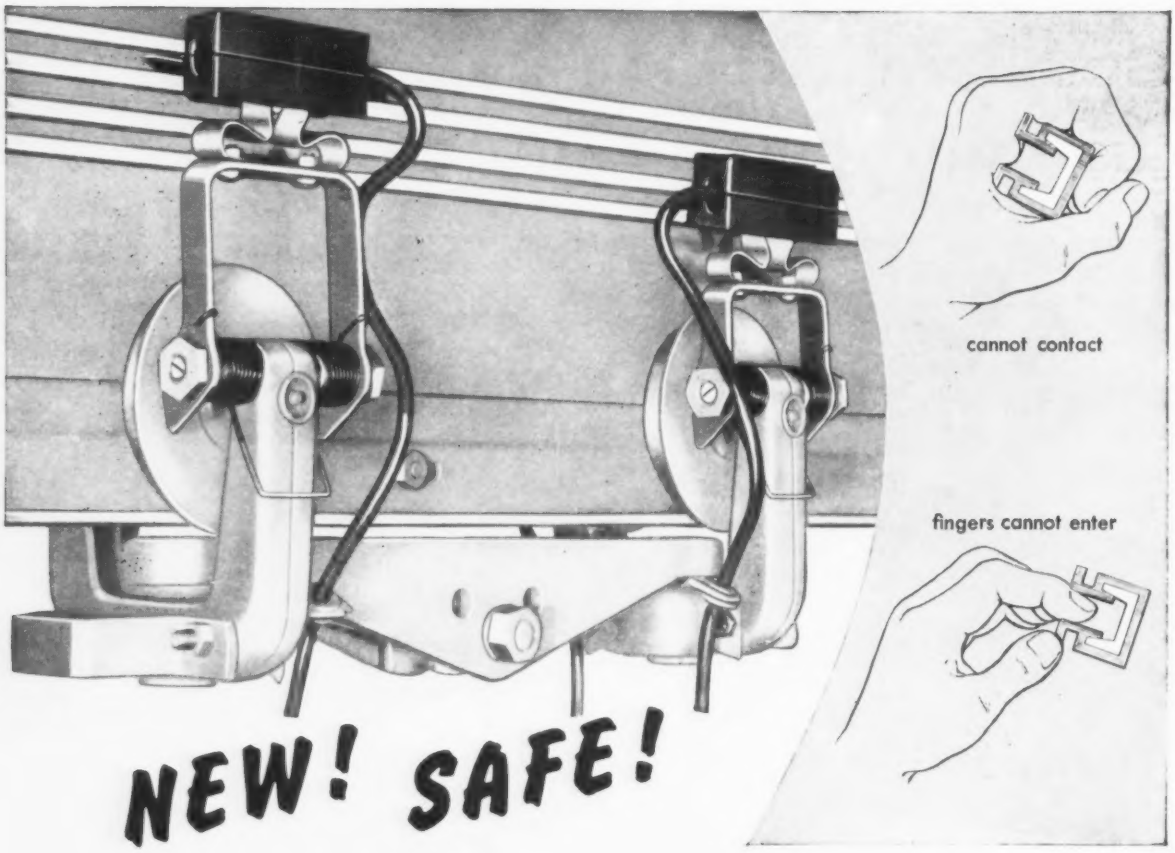
"Look like I'm sold on one particular solvent? Well, how about this: Columbia-Southern's Trichlor lets us operate our units ten degrees higher than we felt safe in going with any other solvent tested here. You know what this means: more contaminant saturation, faster cleaning, less solvent used. And I like the dependable delivery and good servicing the jobber and Columbia-Southern's District Sales Office provide."

For more information, contact our Pittsburgh address or any of the fourteen Columbia-Southern District Sales Offices

COLUMBIA-SOUTHERN CHEMICAL CORPORATION
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER · PITTSBURGH 22 · PENNSYLVANIA

DISTRICT OFFICES: Cincinnati • Charlotte • Chicago • Cleveland • Boston New York • St. Louis • Minneapolis New Orleans • Dallas • Houston Pittsburgh • Philadelphia • San Francisco

IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division



NEW! SAFE!

AMERICAN MONORAIL

KANT SHOCK

SHIELDED ELECTRIFICATION

For Monorail Track and Crane Systems

By covering its standard bus bar electrification with a specially designed polyvinyl chloride extrusion, American MonoRail now furnishes completely safe electrified systems.

This KANT-SHOCK shielding absolutely prevents accidental contact with live bus bars. It is impossible for an adult's finger to enter the shield.

A new type sliding shoe collector provides a floating contact throughout a monorail system regardless of any misalignment due to bent bars or at switch and inter-lock connections.

KANT-SHOCK Electrification positively eliminates all the hazards of open bar conductors — prevents costly accidents — protects employees — reduces insurance rates.

Write for KANT-SHOCK Bulletin KS-1

Member of Materials Handling Institute and Monorail Manufacturers Association

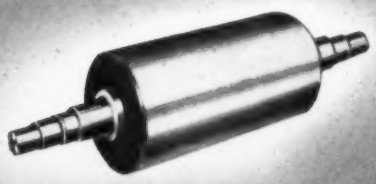
For Power Driven Conveyors, Use Landahl Chainless Conveyors

AMERICAN MONORAIL COMPANY

OVERHEAD HANDLING EQUIPMENT

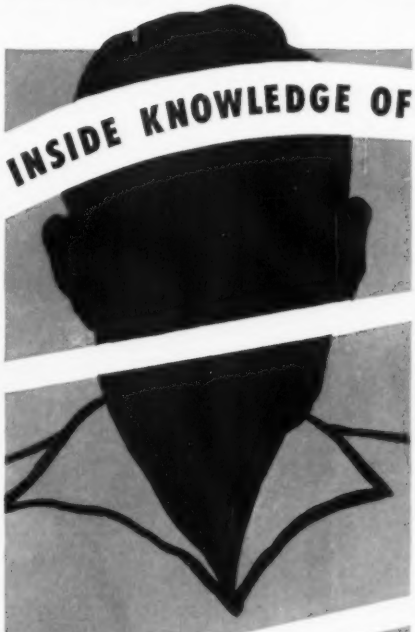
13103 ATHENS AVENUE, CLEVELAND 7, OHIO (IN CANADA—CANADIAN MONORAIL CO., LTD., GALT, ONT.)

"Y.F.&M." builds the best of them!



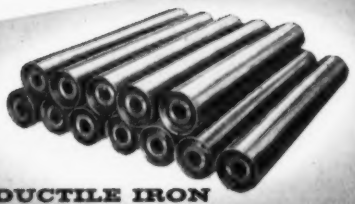
PARALLOY

HOT STRIP COILER ROLLS • COILER PINCH ROLLS
PICKLING LINE PINCH ROLLS • UPCOILER ROLLS
CLEANING LINE PINCH ROLLS • SINKER ROLLS
CARRIER ROLLS • TEMPER MILL TENSION ROLLS



INSIDE KNOWLEDGE OF STRIP MILL PROBLEMS

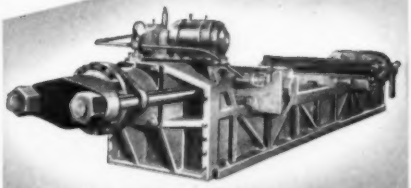
PLUS more than **70 YEARS EXPERIENCE** building what you need



DUCTILE IRON

RUNOUT TABLE ROLLS
HOLDING TABLE ROLLS
LOOPER TABLE ROLLS
LOOPER TABLES
APRON PLATES

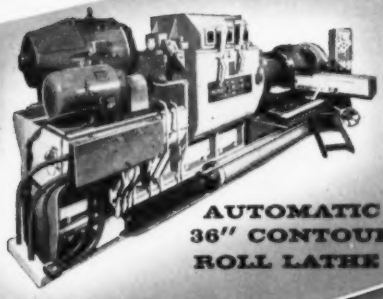
Ductile Iron Castings up to 50,000 lbs.



90" X 240" X 1/4" STRETCHER LEVELER

TAKE UP REEL

Complete Slitting Lines and Equipment



AUTOMATIC 36" CONTOUR ROLL LATHE

Other Capacities: 24" — 48" — 60"

YOUNGSTOWN

HOT and COLD STRIP MILL MAINTENANCE SPECIALISTS

Consult us about your problems. Let us quote on your requirements.

"YOUNGSTOWN" service is based on thorough understanding of strip mill problems and experience in solving them. For example, the problems of scratching, galling, pickup and excess wear are solved by the use of **PARALLOY ROLLS.** Their uniform hardness all through means you can roll more tonnage from new to scrap diameter. **"YF&M" DUCTILE IRON ROLLS** are the proven answers in overcoming heat check, warpage and cracking . . . especially good under the sprays. **"YOUNGSTOWN" MACHINERY** serves major steel mills from coast to coast.

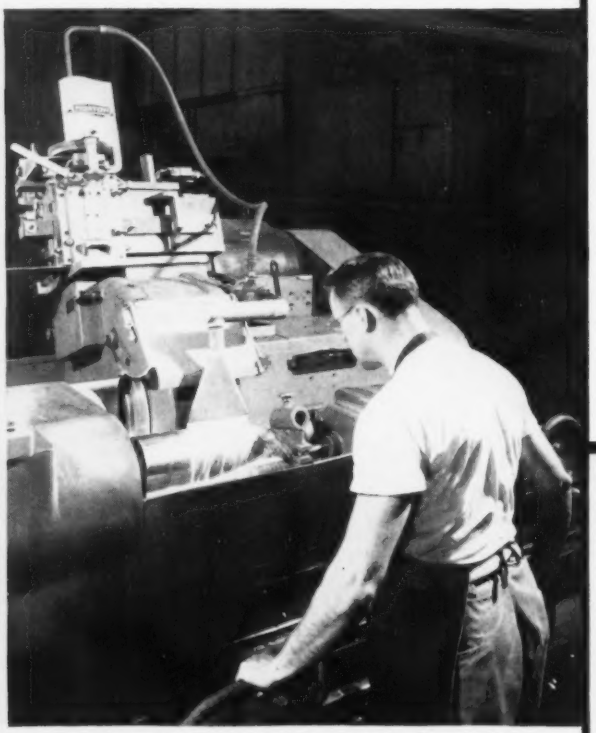
The Youngstown Foundry & Machine Company

SERVING INDUSTRY SINCE 1885

Youngstown 1, Ohio

C-2 AS A ROLL GRINDER for straight, convex, or concaved rolls.

C-2 PLAIN for lowest cost traverse grinding.



C-2 AS A SEMIAUTOMATIC for effortless plunge grinding.

Heavy duty cost cutter —the big Norton C-2

The Big Norton C-2 Cylindrical Grinder removes stock like a steam shovel and handles as easy as your '57 car. It gives you the Norton "Touch of Gold" on massive grinding jobs — large motor and turbine shafts, lathe and drilling machine spindles, radial mill columns, boring bars and the like.

With smooth, abundant power and a rigidly-ribbed base, the C-2 handles work lengths to 240″ and diameters to 24″.

It cuts production costs because it sets up quickly and keeps downtime to a minimum.

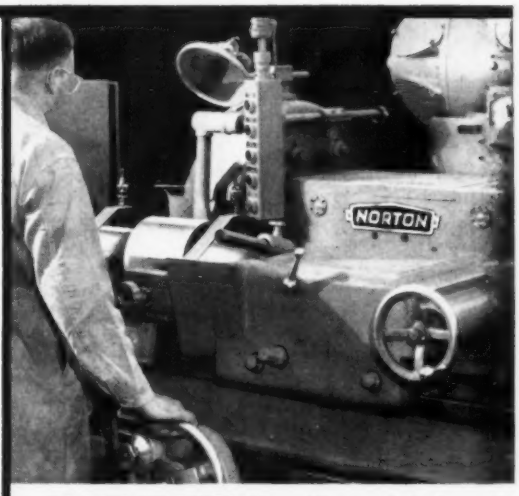
You can have the C-2 in three arrangements — *plain, semi-automatic, or roll.*

It is built in three swings of 14″, 18″ and 24″. The 14″, in lengths from 36″ to 168″. The 18″ and 24″, in lengths from 48″ to 240″.

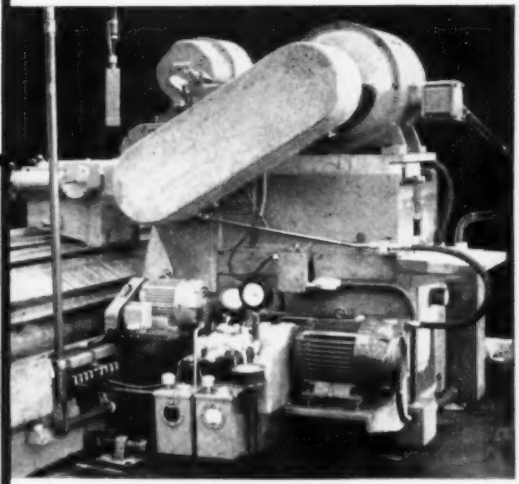
If you use the C-2 semiautomatically, all your operator does is move a single lever for grinding repetitively to exact size and finish.

If you use the C-2 as a roll grinder, the Norton tilting wheel head crowning mechanism comes with it. This mechanism moves the grinding wheel contact point away from or toward the axis of the roll as the roll is moved past the wheel face and is cam and gear controlled to produce any crown desired.

Remember: only Norton offers you such long experience in both grinding machines and grinding wheels to help you produce more at lower cost. For further facts, see your Norton Representative, or write to NORTON COMPANY, Machine Division, Worcester 6, Mass. *In Canada:* J. H. Ryder Machinery Co., Ltd., Toronto 5.



C-2 SETS UP QUICKLY — All controls in front. No reaching by operator. Click count wheel feed index eliminates need for visual attention.



C-2 EASY TO MAINTAIN — Maintenance points on outside of base.

To Economize, Modernize with NEW

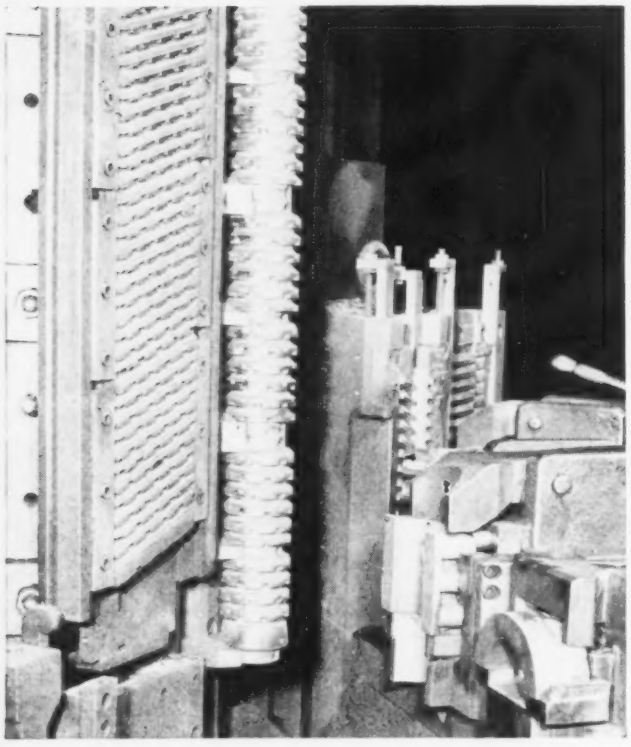
NORTON

GRINDERS and LAPPERS

Making better products . . . to make your products better

District Offices: Worcester • Hartford • Cleveland • Chicago • Detroit
In Canada: J. H. Ryder Machinery Co., Ltd., Toronto 5

NORTON PRODUCTS: Abrasives • Grinding Wheels • Grinding Machines • Refractories
BEHR-MANNING PRODUCTS: Coated Abrasives • Sharpening Stones • Behr-cat Tapes



Grade 883 increases broach life 2500%

Highly abrasive cast iron used for this bearing cap at Studebaker caused conventional broaches to fail after maximum run of only 3,600 parts. After the switch to Grade 883, initial broach ran 50 days, produced 90,000 parts without service. Over-all machining costs were reduced 22%.

Grade 370 saves 155 hours' machining time

Normal machining time on this 165-ton cast-steel propeller runner at S. Morgan Smith Co. was 220 hours. Despite abrasive patches, and interrupted cuts, Grade 370 cut machining time to 65 hours – ⅓ the time. At 154 fpm, Grade 370 ran 30 hours without changing – compared to 6-8 hours with previous tools.

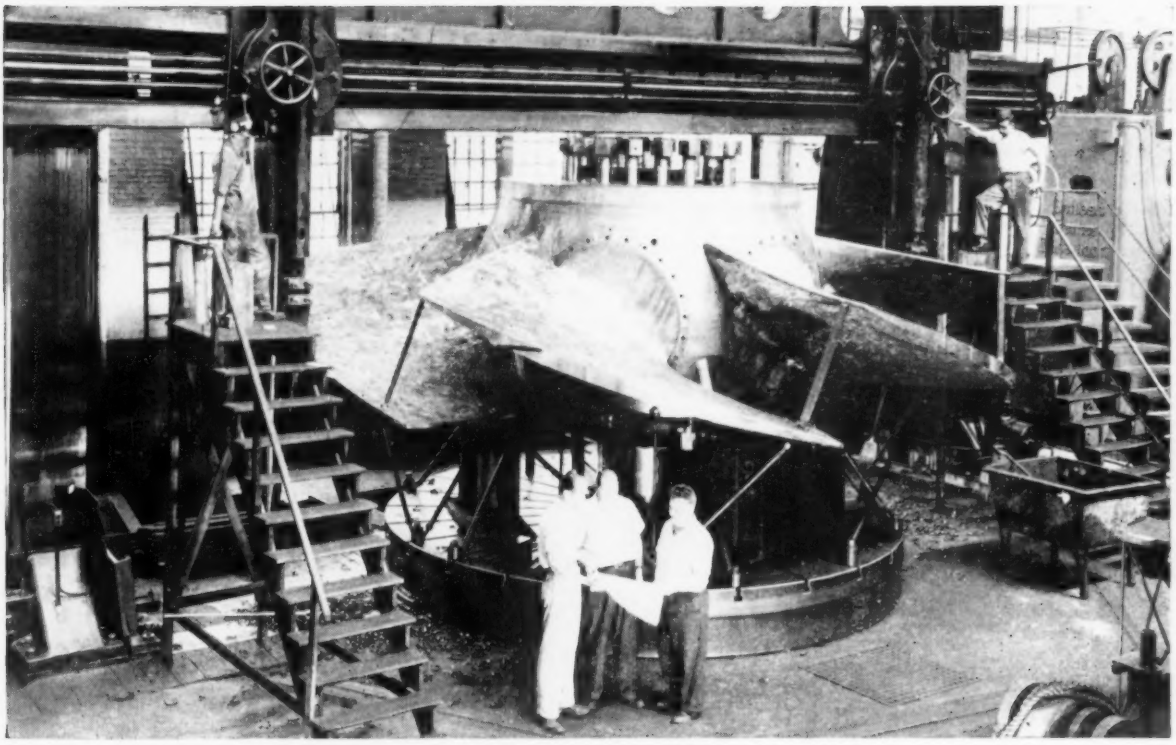
WHY MACHINE OUTPUT GOES UP, WITH CARBOLOY® CARBIDES ON

Grades for cutting every material

Eleven grades to choose from: 300 Series and 78 Series carbides for cutting steel; new Grade 860 for cast iron; five grades for nonferrous machining.

. . . in a form for handling every job

Standard tools in thirteen styles, hundreds of sizes; standard blanks in wide range of styles and sizes. Inserts for Carboloy toolholders or other standard types.



AND UNIT COST COMES DOWN, YOUR METALCUTTING JOBS

- Carboloy cemented carbides are tailored to the job
- Let you cut faster without sacrificing tool life

You'll increase the productivity of your machines, while you reduce total manufacturing cost per piece, when Carboloy cemented carbides go to work on your jobs.

Your machines will be more productive, because they can operate at greater speeds and feeds when tooled with the Carboloy grade designed for the job. And they'll produce more per shift, because Carboloy carbides take rugged machining conditions without sacrifice of tool life.

Your units costs will go down, because the use of these grades means less machining time per piece . . . with lower downtime expense, reduced grinding and maintenance charges.

Proved in the field

Hundreds of inplant case histories like the two shown above prove Carboloy cemented carbides can double and triple output, save thousands of dollars per year in machine time, manpower, and tool costs.

The reason is simple. Each Carboloy carbide grade has cutting characteristics tailored to a particular type of job. Whether you're machining ferrous or nonferrous metals, whether you're taking heavy or finishing cuts . . . one of the eleven Carboloy carbide grades handles the job. And you can quickly get the *grade* you need, in the *form* you need it.

Stocked locally by Carboloy Distributors

Your local Authorized Distributor of Carboloy cemented carbide products stocks standard tools, blanks, inserts, and toolholders in styles and sizes for every job or machine. He'll give you fast delivery, and expert technical assistance.

Call him today (you'll find his name in the Yellow Pages of your phone book). Or write: *Metallurgical Products Department of General Electric Company, 11153 E. 8 Mile Road, Detroit 32, Michigan.*

CARBOLOY®
CEMENTED CARBIDES

GENERAL ELECTRIC

SIX GREENLEE'S ON THIS TEAM

GREENLEE

GREENLEE

GREENLEE

GREENLEE

GREENLEE

GREENLEE

Leading Auto Manufacturer Selects 6 Greenlee Transfer Machines For V-8 Engine Block Precision Machining Line

The entire installation has 127 stations and a machined block comes off the line at each cycle. This first unit drills and reams locating holes, mills main bearings to width; mills lock slots, oil seal and slinger grooves, fuel pump and filter pads and rough bores cylinders. It also has a gauging station to check locating holes, a reject station and three turnover stations, the last of which positions the block for the next machine.

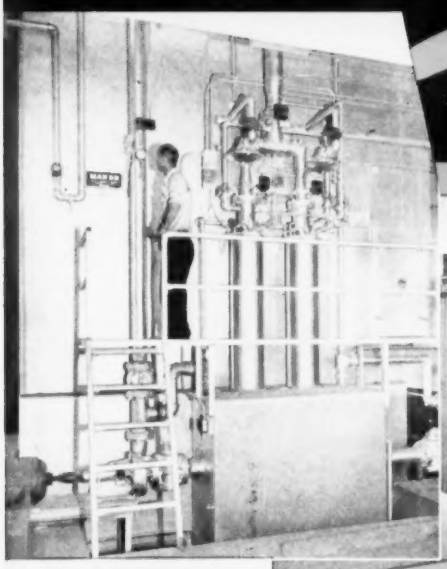
WRITE FOR COMPLETE INFORMATION

GREENLEE BROS. & CO.

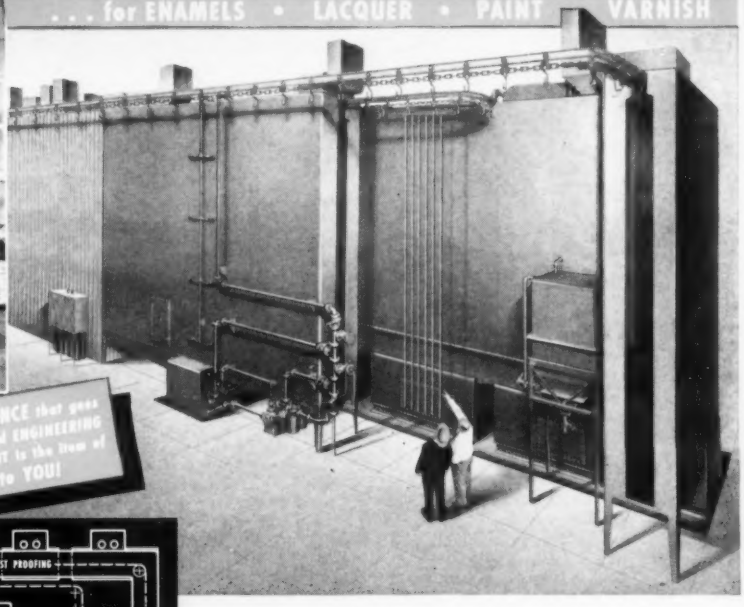
1807 MASON AVENUE
ROCKFORD, ILLINOIS

COMPLETE *Finishing* SYSTEMS

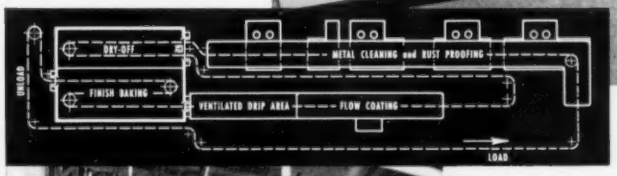
. . . for ENAMELS • LACQUER • PAINT • VARNISH

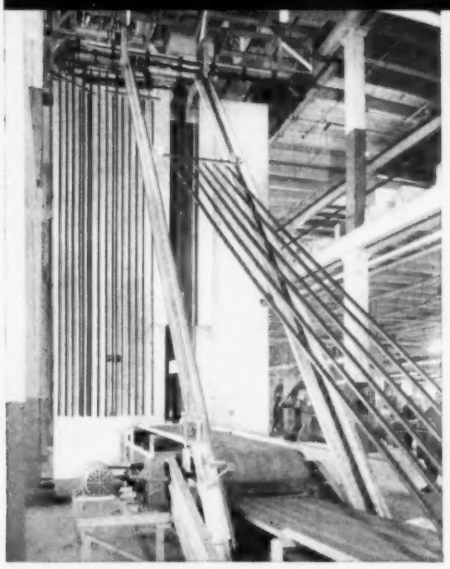


Mahon FIRE-JET Heating Units on the solution tanks of Mahon Five-Stage Metal Cleaning and Rust Proofing Machine—part of the Complete Mahon Finishing System at MULT-A-FRAME Division of Ainsworth Manufacturing Corporation, Detroit, Mich.



. . . the EXPERIENCE that goes into the PLANNING and ENGINEERING of MAHON EQUIPMENT is the item of GREATEST VALUE to YOU!





Exit end of Mahon combined Dry-Off and Finish Baking Oven showing Automatic Unloading Conveyor Ramp and Belt Type Handling Conveyors on the first floor at the Ainsworth Plant.

Ainsworth MULT-A-FRAME Channels are Painted in MAHON EQUIPMENT!

When the MULT-A-FRAME Division of Ainsworth Manufacturing Corporation was confronted with a finishing problem, they turned to Mahon for the solution. The product is a box channel 20 ft. long with only a ½" slot in one side—these are cleaned, rust proofed and painted outside and inside. Two hundred channels are finished per hour. Thousands of Fittings, Concrete Inserts and other MULT-A-FRAME parts and accessories are also finished on the same line. The finishing equipment extends from a pit in the first floor to the second floor ceiling. Oven Heating Units, Recirculating Fans and Exhaust Fans are located on the third floor. Automatic loaders and unloaders, with ramp conveyors from the first floor, load and unload the main conveyor which is located 27'-5" above the first floor. This is another Complete Mahon Finishing System designed and built by Mahon to do a specific job efficiently and economically. If you have a finishing problem, or are contemplating new finishing equipment, you will find that Mahon engineers are better qualified to advise you on both methods and equipment requirements . . . better qualified to do the all-important planning and engineering of equipment—which is the key to fine finishes at minimum cost. You will also find that Mahon equipment is built better for more economical operation over a longer period of time. Mahon's background history in this highly specialized field covers thousands of Complete Finishing Systems including Dip, Flow Coating and Spray Equipment for every conceivable product painted on a production basis. See Sweet's Plant Engineering File, or write for Catalog A-657.

THE R. C. MAHON COMPANY • Detroit 34, Michigan

SALES-ENGINEERING OFFICES in DETROIT, NEW YORK and CHICAGO

Engineers and Manufacturers of Complete Finishing Systems—including Metal Cleaning, Pickling and Rust Proofing Equipment, Hydro-Filter Spray Booths, Dip and Flow Coaters, Filtered Air Supply Systems, Drying and Baking Ovens, Cooling Tunnels, Heat Treating and Quenching Equipment for Aluminum and Magnesium, and other Units of Special Production Equipment.

MAHON

THE WORLD'S FIRST CARD-OPERATED MILL,

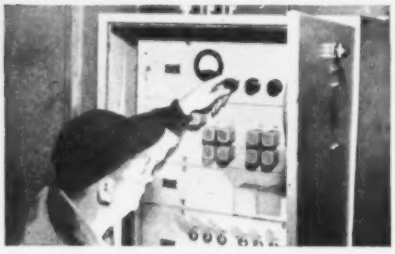
PROMISES YOU BETTER STEEL—AUTOMATICALLY

HIGHER QUALITY

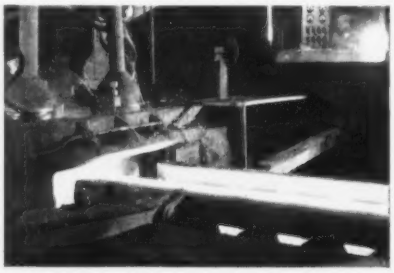
MORE
UNIFORM SIZE

BETTER
PHYSICAL PROPERTIES

New method provides a large file of schedules for various types of steel.



General Electric engineers, working closely with AL personnel, developed and installed the control systems which regulate the mill.



Better quality, more uniform steel is the result.

A NEW punch-card control system, recently installed on the 56" universal roughing mill at Allegheny Ludlum's Brackenridge, Pa. plant, is advancing mill standards of quality control.

Here's how it works: Allegheny Ludlum rolling experts predetermine optimum rolling procedures for the type of steel desired and translate this data into punches on an IBM card. These punches represent the proper screwdown settings, mill speed and number of passes. When the mill schedule calls for it, the mill operator in the pulpit simply selects the proper card, inserts it into the card reader, and he is ready to roll. As the operator makes each pass, the mill is automatically adjusted for each additional pass required. The rolled material is held uniformly to desired dimensions, and day in, day out it proves to have better, more constant physical properties.

It's easy to see how this kind of progress fits into your interest in consistent high quality. By performing rolling operations exactly the same way time after time, this new unit further assures Allegheny Ludlum customers that they are getting the best possible product from the industry's pioneer producer.

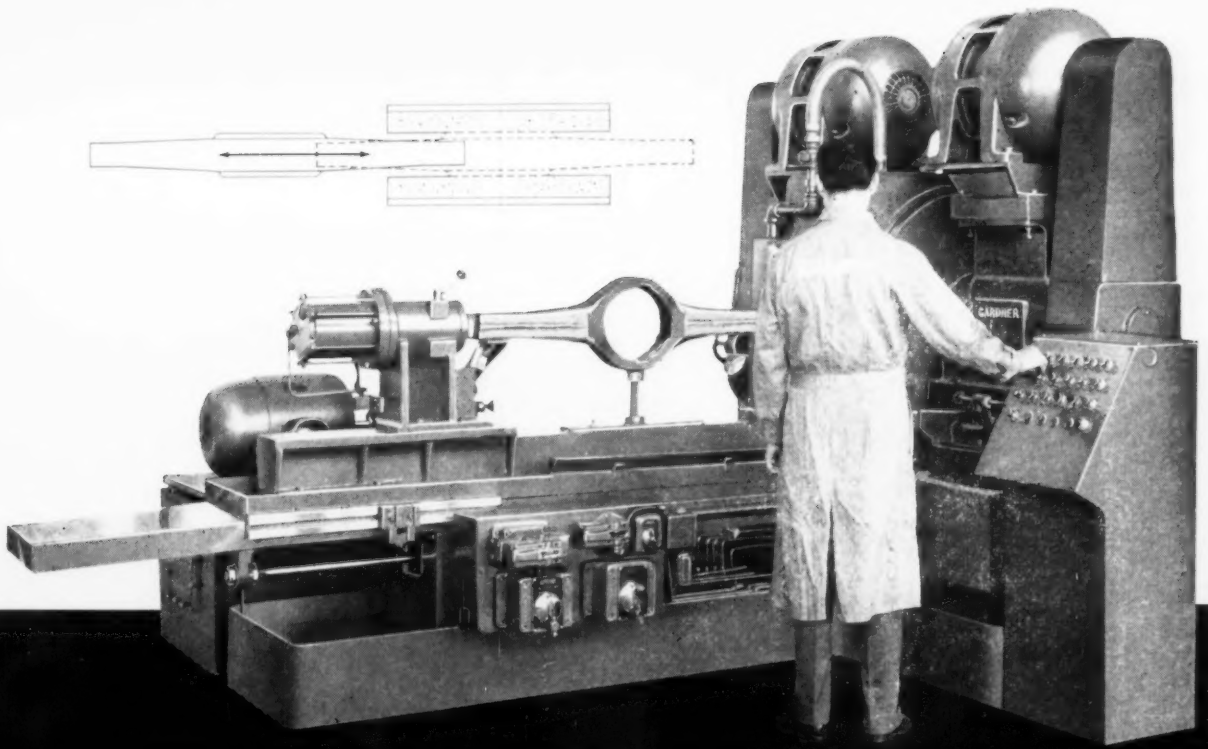
Let us talk over your requirements with you. Write us, or call the Allegheny Ludlum sales office nearest you, and an AL sales engineer will help you with any problem. ***Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pennsylvania.***

WSW 6628

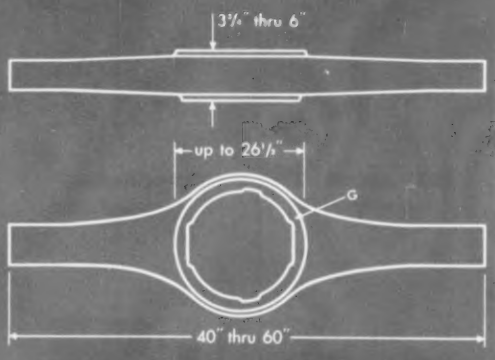
PIONEERING on the Horizons of Steel

Allegheny Ludlum

AL ALLEGHENY LUDLUM



Disc grinds two sides of large axle housing in one operation



Special fixturing reduces cost over one side at a time grinding

tooling

hydraulic sliding work table
air-clamping fixture
hydraulic head feed for face cutting
automatic lubrication
fixture mounted dressers

production data

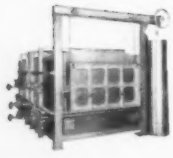
Part:	axle housing
Operation:	grinding banjo section
Rate:	48 pieces per hour
Stock Removal:	1/32" to 1/16"
Disc Size:	36" x 3" x 20"

GARDNER

precision disc grinders

BELOIT, WISCONSIN

SURFACE

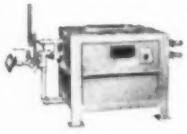


large oven

small oven

laboratory

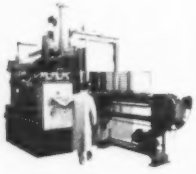
circular pot



rectangular pot

forge

balco® atmosphere



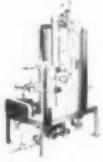
allcase® atmosphere

horizontal muffle

vertical muffle

brazing

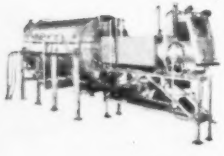
sintering



MRX® atmosphere generator

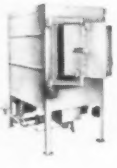
MDX® atmosphere generator

MAX® atmosphere generator



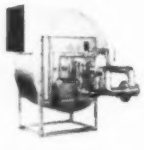
stainless steel

rivet heater



horizontal convection

vertical convection



direct air heaters

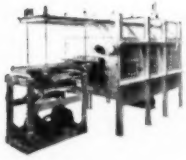
C E

tilting metal melting

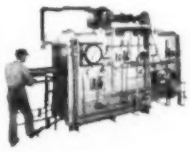
stationary metal melting

soft metal melting

aluminum melting-holding



continuous snap hearth



continuous link belt

indirect air heaters

continuous brazing

widest selection

The Surface line of Standard Rated equipment offers a broad range of types and sizes to choose from. Exactly what is needed can be selected. Standard furnaces can be modified to meet the demands of unusual applications.

known production rates

Rated production makes it easy to determine the quantity of finished product which a Surface unit will produce in any given period of time.

known operating costs

Tabulated figures and performance curves on all units clearly indicate in advance the operating cost per pound of finished product.

quick delivery

Surface standardization permits stocking the same parts for many different furnaces. This cuts engineering and procurement time. Surface also offers 80 types and 800 sizes of industrial burners—the same as used on Standard Rated furnaces—for application to your existing furnaces or other requirements.

Write for Bulletin SC-175.

HEAT TREAT, STEEL MILL, GLASS DIVISIONS

SURFACE COMBUSTION CORPORATION

2373 DORR STREET TOLEDO 1, OHIO

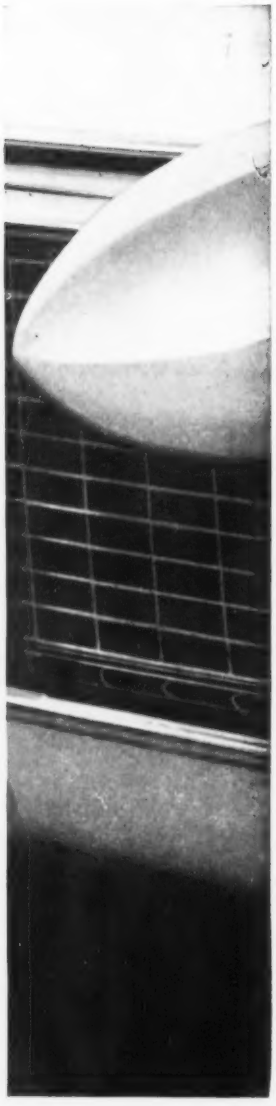
Surface®

wherever heat is used in industry

For whatever you fabricate . . .

N-A-X FINEGRAIN STEEL

COMBINES STRENGTH WITH FORMABILITY



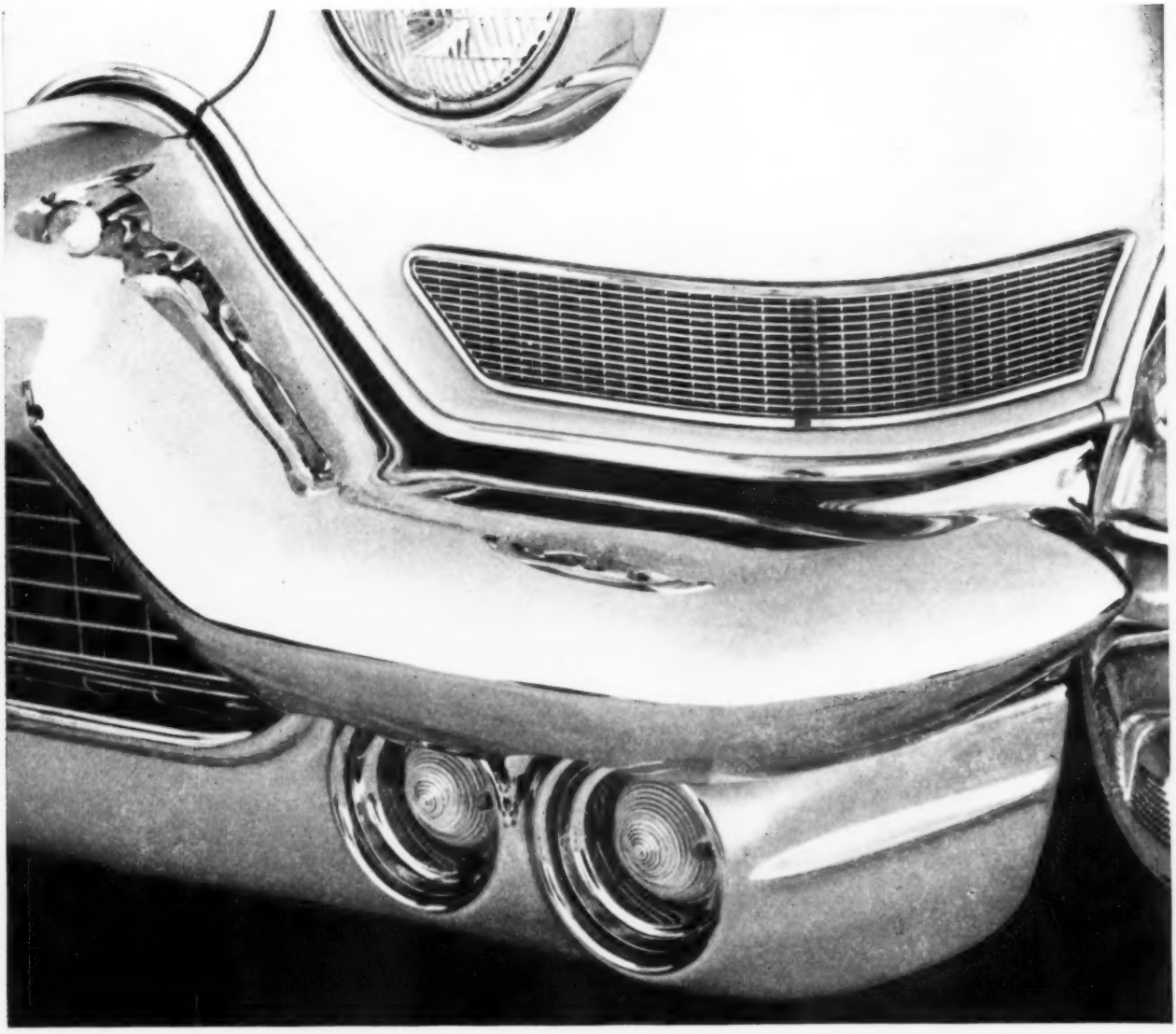
Among the many economical advantages of N-A-X FINEGRAIN—a low-alloy, high-strength steel with widely diversified applications in modern metals design—is its combination of great strength with excellent formability. Even at the higher strength levels (50% greater than mild carbon steel) N-A-X FINEGRAIN can be cold formed and drawn into difficult stampings and cold formed shapes.

Take these qualities and add the ability of N-A-X FINEGRAIN to be readily polished to a high luster at minimum cost, and when plated, you have a steel ideally suited for such applications as bumpers, bumper guards, and many others where strength and toughness with good finish is important.

Engineers and designers like N-A-X FINEGRAIN especially because its physical properties are inherent in the "as rolled" condition. No subsequent treatment is needed to insure its characteristics.

Check these other important advantages: N-A-X FINEGRAIN steel, compared with carbon steel, is 50% stronger • has high fatigue life with great toughness • is stable against aging • has greater resistance to wear and abrasion • is readily welded by any process • offers greater paint adhesion. NOTE: Where greater resistance to atmospheric corrosion is an important factor, our N-A-X HIGH-TENSILE steel is recommended.

For whatever you fabricate, from bumpers to bulldozers, with N-A-X HIGH-STRENGTH steels you can design longer life, or less weight, and economy into your products. Let us show you how.



One of many applications where N-A-X FINEGRAIN'S strength with formability saves production money.

N·A·X
HIGH-STRENGTH STEELS

N-A-X Alloy Division, Dept. A-4

GREAT LAKES STEEL CORPORATION

Detroit 29, Michigan • Division of

NATIONAL STEEL CORPORATION

N-A-X Alloy Div., Dept. A-4
Great Lakes Steel Corp., Detroit 29, Mich.

☐ Please send me technical data on N-A-X FINEGRAIN steel.
☐ Please have your representative contact me.

Name_____ Title_____

Company_____

Street_____

City_____ Zone____ State_____

Plan your gear buying with "the book"

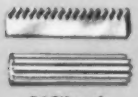
You'll be days... and dollars ahead

The Boston Gear Catalog No. 56 is "the book" in constant use by men who specify and buy gears and other transmission parts, — for good reasons. They know it lists over 2000 types and sizes of standardized stock gears. They know that Boston Gears are top-rated for precision and performance. And they know, also, they can get

PROMPT DELIVERY OFF-THE-SHELF — FROM LOCAL DISTRIBUTORS — AT FACTORY PRICES

Why pay more (and wait) for "specials" when you can get Boston Gears FROM STOCK, nearby, to meet any specification? Be cost-wise . . . STANDARDIZE. Get your copy of Catalog No. 56. You'll be days and *dollars* ahead on any transmission job. Boston Gear Works, 72 Hayward Street, Quincy 71, Massachusetts.

SPUR GEARS
14½° and 20° P.A.
.208" to 40" P.D.
Brass, steel, iron and non-metallic

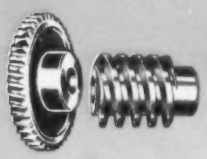


RACK and PINION WIRE
14½° and 20° P.A.
Brass and Steel

BEVEL and MITER GEARS
20° P.A.
.312" to 14" P.D.
Brass, steel, iron

SPIRAL MITER GEARS
1" to 5" P.D.

HELICAL GEARS
.333" to 6" P.D.
Bronze, hardened steel



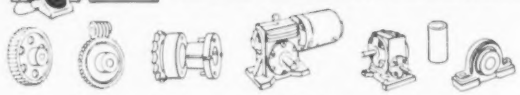
WORM GEARS
.417" to 18" P.D.
Bronze and iron

WORMS
.333" to 4" P.D.
Soft Steel and Hardened and Ground Steel

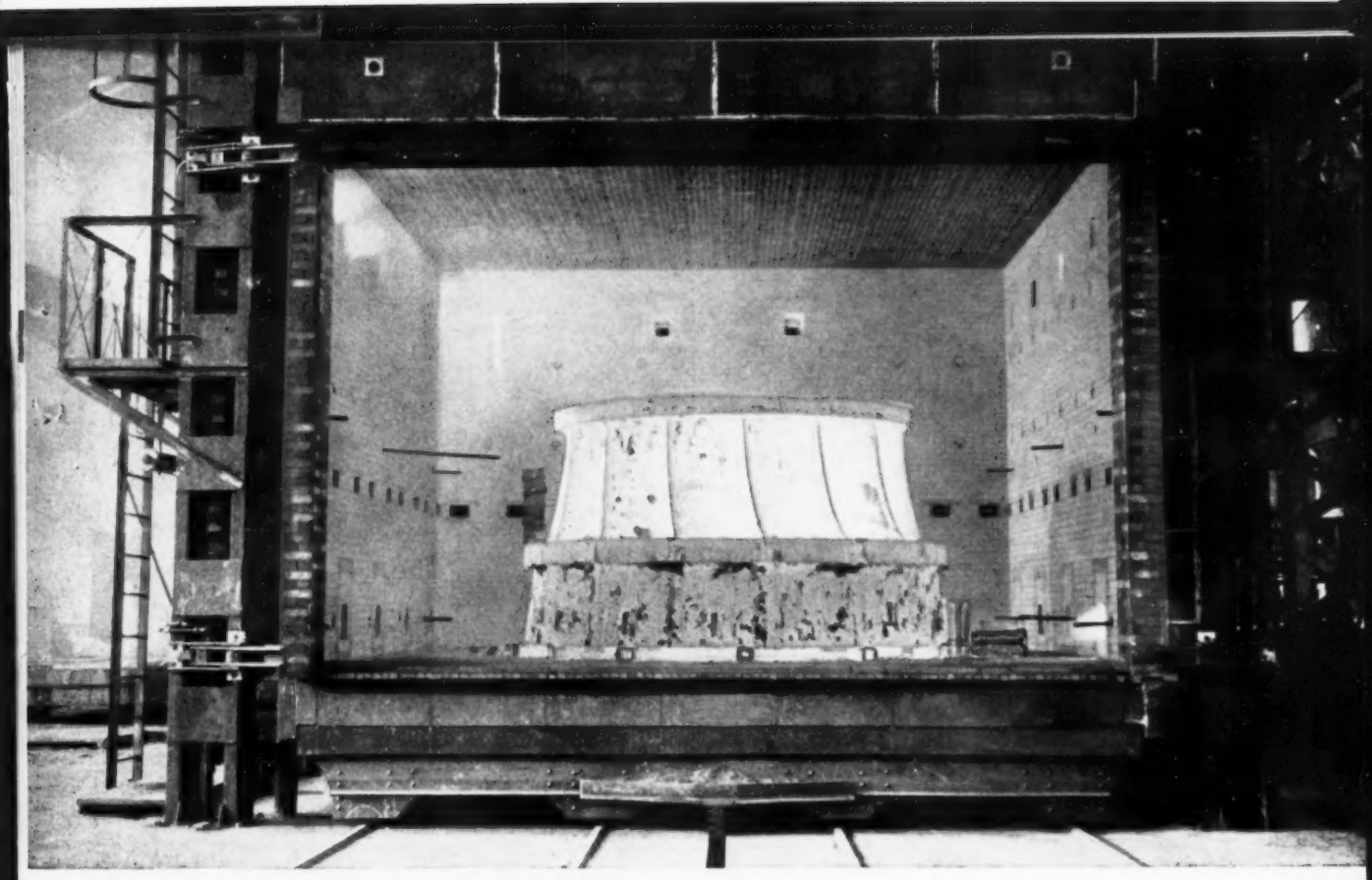
CALL YOUR BOSTON gear DISTRIBUTOR

For nearest Distributor LOOK UNDER "GEARS" in the 'Yellow Pages'

7124 STANDARDIZED TRANSMISSION PRODUCTS



Stock Gears • Sprockets and Chain • Speed Reducers • Bearings • Couplings



For best performance and maximum economy

7 different specialized refractories used in annealing furnace lining

Engineering a furnace lining with *specialized* refractories can save dollars on construction, fuel and maintenance as well as extend productive working time. To achieve these results, seven different B&W refractories were used in the lining of this 25′ x 23′ x 14′ annealing furnace.

Fuel savings and close temperature control were made possible by using three types of *lightweight* B&W Insulating Firebrick. Walls are composed of *B&W K-23 IFB* backed up with *B&W K-16*. Because of the proximity of the burners, the roof was constructed of *B&W K-26 IFB*, a higher temperature brick to guard against the effect of possible localized overheating.

The weight saving construction means about 100 lb less refractory material to heat up per sq ft than with ordinary firebrick, or about 28 tons less in the roof of the furnace. Furthermore, supporting steel is less massive, far less costly. Commercial size steel can be used for roof suspension instead of special steels.

To eliminate the need for expensive special shapes, the burner tunnels are formed of *B&W's 3000 F refractory castable, Kaocast*. Lintels over the burners and jambs are constructed of rugged *B&W Junior Firebrick*.

To take advantage of fast, easily installed castable construction, *B&W Kaocrete-D* was used in the nose arch (separately pictured). This sturdy castable with a 2500 F use limit was selected to provide strong resistance to abrasion caused by door operation. In addition, the need for costly fired shapes and their supporting castings was eliminated, as was a great deal of expensive engineering detailing.

The car top is insulated with *B&W Kaolite-20*, a 2000 F insulating refractory concrete.

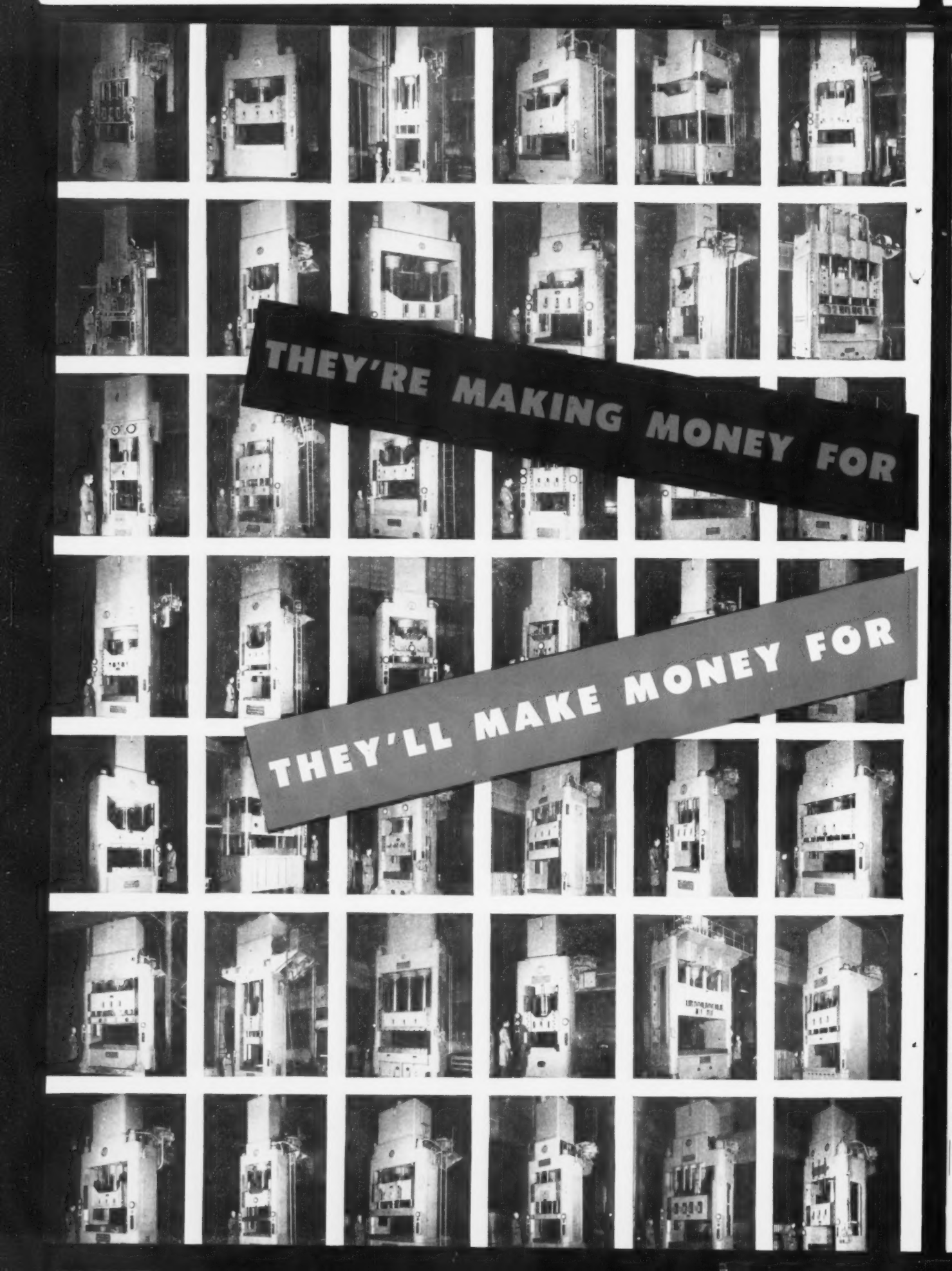
For further information, write for B&W bulletin R-2-H on insulating firebrick and B&W bulletin R-35 on castables.

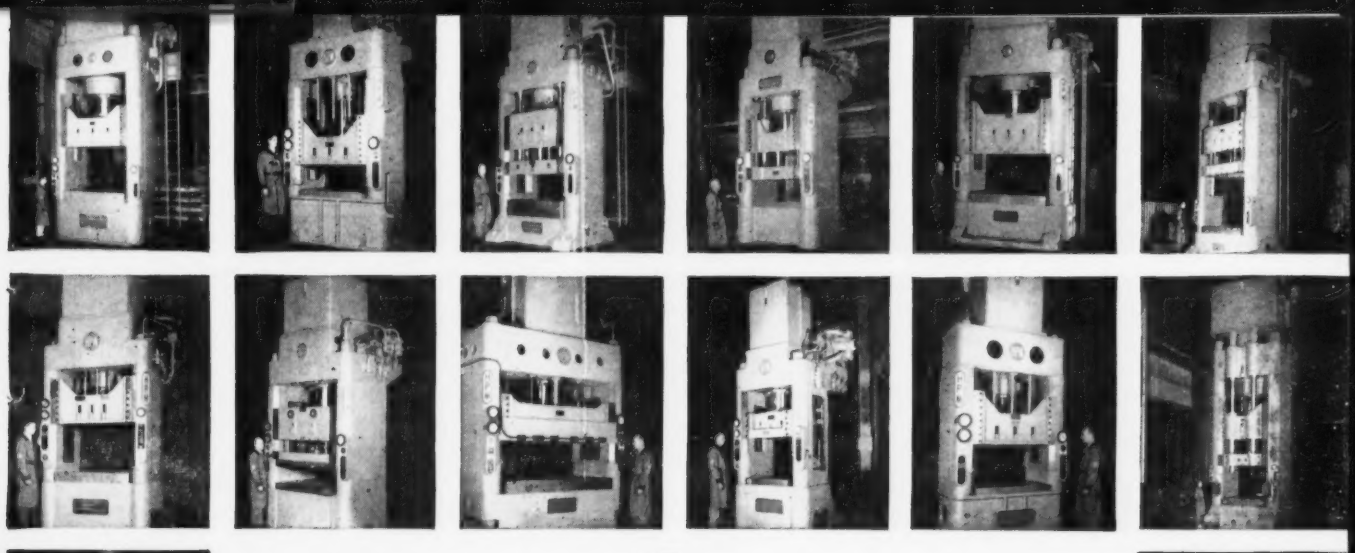
Nose arch, cast of B&W Kaocrete D, immediately after removing forms.

BABCOCK & WILCOX

THE BABCOCK & WILCOX CO.
REFRACTORIES DIVISION
GENERAL OFFICES: 161 EAST 42nd ST. NEW YORK 17 N.Y.
WORKS: AUGUSTA, GA.

R-574


THEY'RE MAKING MONEY FOR
THEY'LL MAKE MONEY FOR



OTHERS!

YOU!

HPM

HYDRAULIC PRESSES

Each H-P-M deep drawing press shown here has mastered a production problem in a prominent metal working plant. In each case the results have been . . . increased output . . . fewer rejects . . . a higher quality product at lower cost. Yes, H-P-M hydraulics are the production standard for the metal stamping industry where deep draws are required!

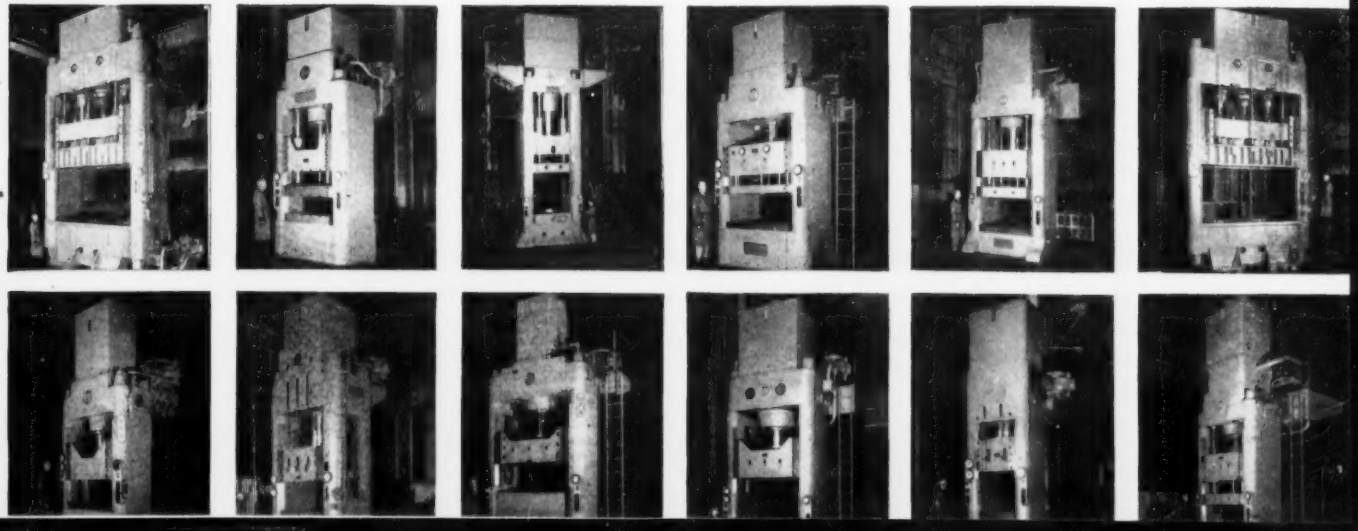
These H-P-Ms were not "dreamed up" over night. They are backed by a press builder with 80 years of hydraulic experience . . . a company which has pioneered such important hydraulic press features as . . . the self-contained press . . . FASTRAVERSE high speed operation . . . closed circuit hydraulic system . . . reversible, variable delivery radial pumps . . . complete automatic press cycle controls . . . variable pressure hydraulic blankholder and die cushion . . . pressure reversal . . . in fact, every known modern development now employed in hydraulic presses.

You capitalize on this "know how" when you specify H-P-Ms. You name the draw job . . . we will choose an H-P-M from among the many hundreds of designs which have already been built and proven. A nearby H-P-M engineer is available to help you. Write today.

THE HYDRAULIC PRESS MANUFACTURING COMPANY

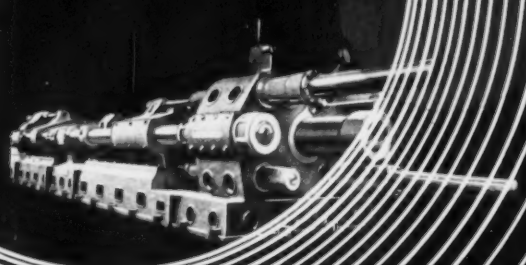
A DIVISION OF KOEHRING COMPANY

Marion Road • Mount Gilead, Ohio, U.S.A.



seamless tube mills

INNOCENTI



1350 t. piercing press

INNOCENTI

CWB-Milling & Boring Machine

works in Milan (Italy)

Bertani

Progress with
TITANIUM

TITANIUM ALLOY MACHINEABILITY

demonstrated by Bendix turbine starter wheel*

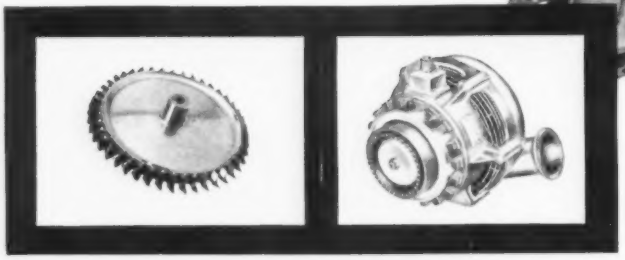
This wheel is one of hundreds machined out of solid titanium alloy forgings for air turbine starters, used to crank up jet engines.

At the start of this program, machining was extremely difficult, and milling cutters usually had to be replaced after machining five blades. Now with low-carbon MST 3Al-5Cr alloy, machineability is comparable to stainless steel. (Mallory-Sharon guarantees a carbon content of 0.1% maximum.)

Only titanium alloy provides the high strength required at such light weight—permits Bendix to cut weight—44% less than steel. The alloy maintains strength at high temperature, and meets the need for a metal that resists "creeping" under great centrifugal forces.

May we help *you* apply titanium? Write Dept. R-8, for new booklet "Titanium Fact File".

**Registered trade mark*



Air Turbine Starter
made by Utica Division of Bendix Aviation Corporation is relatively light in weight, small in overall dimensions.

MALLORY Ti SHARON

MALLORY-SHARON TITANIUM CORPORATION · NILES, OHIO

Producers of titanium and titanium alloy sheet, strip, plate, rod, bar, billets

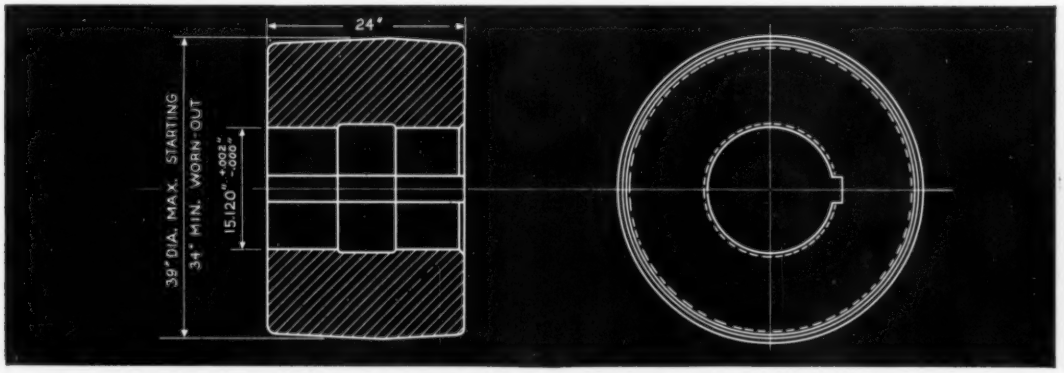
TIPS FROM A ROLL MAKER'S NOTEBOOK

MACKINTOSH-HEMPHILL DIVISION, E. W. BLISS COMPANY, Pittsburgh 3, Pennsylvania

Cast mill rolls • Johnston cinder pots • rotary tube straighteners • end-thrust bearings • heavy-duty lathes • steel and special alloy castings

THE SECRET OF GOOD TUBE MILL RINGS:

Put the extra metal where it does the least harm



Any roll ring cast with a cored hole creates special problems. Tube mill piercing rolls are no exception.

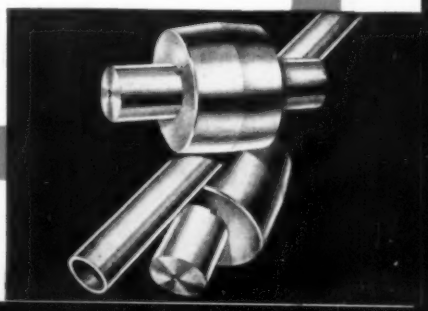
General foundry practice has been to allow sufficient stock on both the outside diameter and bore to permit "giving a little and taking a little" to "true" the finished O. D. with the I. D. when machining. Mack-Hemp foundrymen have modified this practice by keeping the outside stock at a minimum and increasing the stock in the bore. This extra stock in the bore provides an ample margin for "truing up" the two diameters during finishing, with only a bare minimum of metal removed from the O. D.

The roll user benefits in two ways—better rings at a lower price. In the first place, with roll rings priced as they are, on a "cent-per-pound-on-rough-weight" basis, he saves money. This is because extra metal near the center of the roll weighs far less than the same thickness at the roll surface. For instance, every ¼" of oversize on the O. D. of a 39" diameter, 24" long ring adds roughly 110 pounds of metal. On the other hand, ¼" extra stock on the 15" bore of the same ring adds only 40 pounds.

The segregation problem—Even more important, however, is the improvement in the depth of sound metal below the surface of the cast roll which is gained by casting to minimum tolerances on the O. D. and maximum on the I. D. Mack-Hemp tube mill rolls are noted for their freedom from the "segregated streaks" which lead to scrapping before worn-out diameter. Since these flaws usually occur at a fairly regular depth below the outside surface of a cast roll, the closer the O. D. as-cast diameter is to the finished diameter, the deeper this zone of segregation.

The relation of "bite" to hardness and wear—A very important requisite of a piercing mill roll is good "bite" to eliminate slippage. Ideally, this should be achieved without sacrificing too much wear resistance. Fortunately, bite and wear resistance are not always in direct proportion to hardness. Both these qualities can be combined—at least to a degree—in the same roll. For example, a roll of one alloy type may slip more than a harder roll of another type. Today, higher speed mills have stepped up the demand for these better, harder rolls.

Mack-Hemp's broad experience with the many tube mills now in operation can be of real help to any tube mill operator with a roll problem. And it's the same story no matter what your type of mill. For help with any problem of roll use, call on Mackintosh-Hemphill Division, E. W. Bliss Company, 901 Bingham Street, Pittsburgh 3, Pennsylvania.

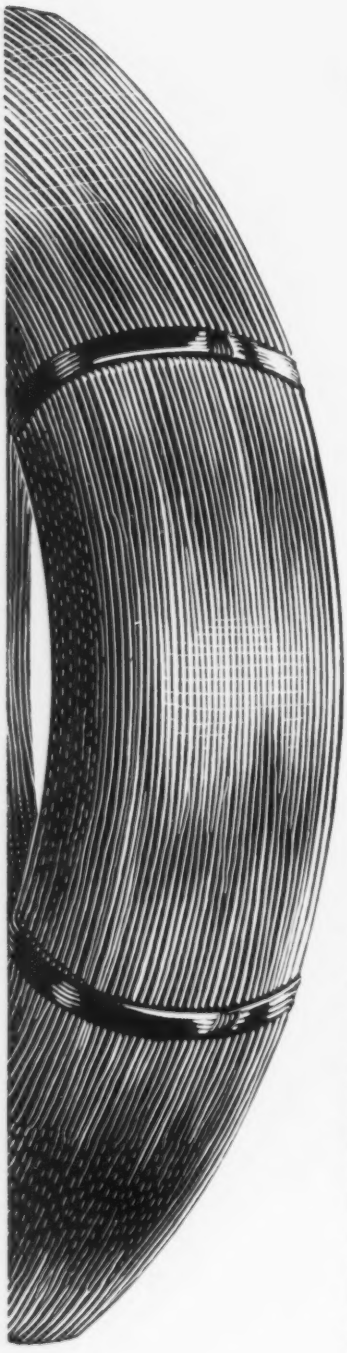


MACKINTOSH-HEMPHILL

You get more tonnage from the rolls with the Striped Red Wabblers

Division of E. W. BLISS COMPANY

Presses, Rolling Mills, Special Machinery



209 DIFFERENT KINDS OF WIRE

. . . *and Youngstown Makes Them All*

No matter what type wire you require, Youngstown should be your specification for high quality, uniformity and dependability. That's because they are **all** drawn from specially refined open-hearth carbon steels to meet **your** most exacting specifications.

Every grade of Youngstown Wire is rigidly quality-controlled in all steps of its production from ore mining to finish drawing and coating. This guarantees you a uniform product—both chemically and physically—that's free from injurious seams and piping, laps, die marks, as well as internal tearing and cupping.

Why not study this listing—it may suggest new products you could make from Youngstown Wire to boost both your sales volume and profits.

For additional information or metallurgical assistance, write or phone today to your nearest Youngstown District Sales Office.

QUALITY YOUNGSTOWN SERVICE

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

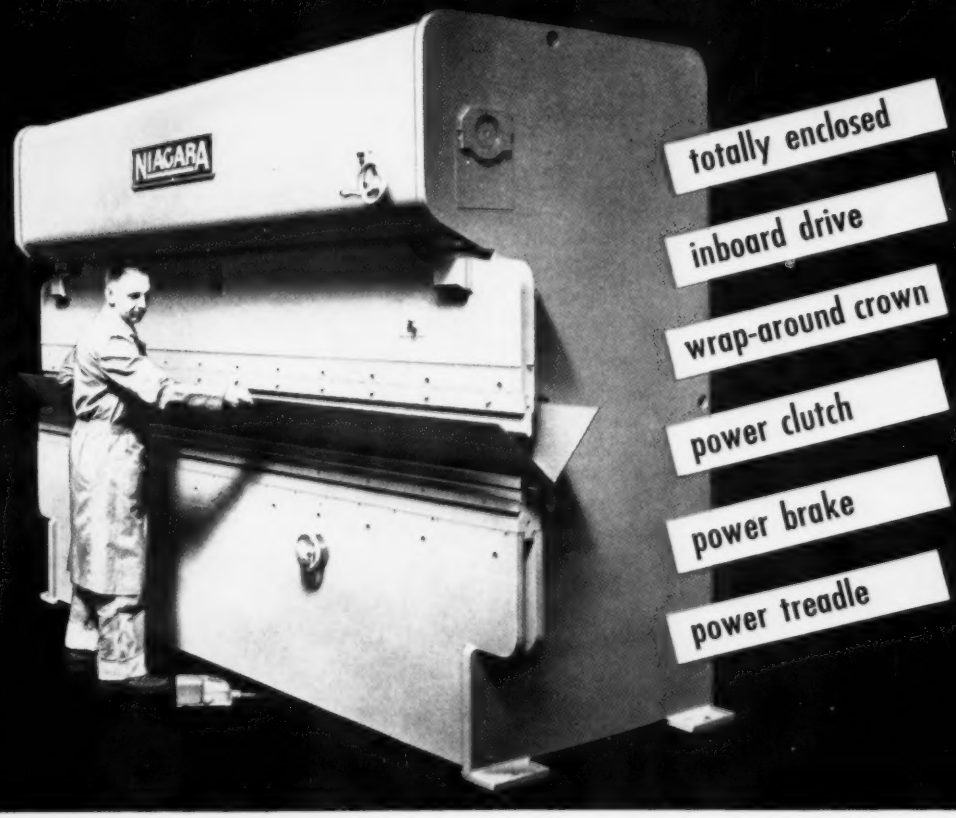
General Offices - Youngstown 1, Ohio

District Sales Offices in Principal Cities

Aircraft Wire
Alloy Wire
Annealed Wires
Armor Wire: Armoring Wire
Artificial Flower Wire
Automotive Wire
Awl Wire
Axle Wire
Bail Wire
Bale Tie Wire
Baling Wire
Ball Pin Wire
Basic Wire
Basket Handle Wire
Bed Rods
Bessemer Spring Wire
Bicycle Chain Stud Stock
Bicycle Spoke Wire
Binding Wire
Bolt and Rivet Wire
Bond Wire
Bonnet Wire
Bookbinder Wire
Border Wire
Bottle Handle Wire
Bottling Wire
Box Binding Wire
Box Hinge Wire
Brace Wire
Brick Cutting Wire
Bright Wire
Broom Wire
Brush Wire
Buckle Wire
Bundling Wire
Button Hook Wire
Cable Armor Wire
Can Key Wire
Cap Screw Wire
Car Heater Wire
Car Seat Wire
Card Wire
Cast Steel Wire
Ceiling Hook Wire
Chain Welding Wire
Chain Wire
Chair Rods
Chair Wire
Channel Bead Wire
Channel Pin Wire
Check Rower Wire
Clasp Wire
Clip Wire
Clothes Line Wire
Clothes Pin Wire
Coat Hanger Wire
Coat and Hat Hook Wire
Coiled Spring Wire
Cold Heading Wire
Concrete Reinforcement Wire
Copper Bearing Wire
Coppered Wire
Core Wire (A.C.S.R.)
Cork Screw Wire
Cotter Pin Wire
Crimping Wire
Croquet Arch Wire
Curry Comb Wire
Curtain Rods
Damper Rods
Double Clinch Wire
Dowel Wire
Duck Bill Nail Wire
Eave Trough Hanger Wire
Edge Wire
Elevator Hoisting Cable Wire
Fence Wire
Ferrule Wire
Fine size Wire
Firing Pin Wire
Fish and Leader Wire
Flesh Fork Wire
Flexible Shaft Wire
Florist Wire
Foundry Core Wire
Frame Wire
Fruit Jar Wire
Fuse Wire
Galvanized Wire
Galvanized Armor Cable Wire
Galvanized Brace Wire
Garment Hanger Wire
Gate Hook Wire
Grape Tie Wire
Grass Catcher Wire
Guard Wire
Gun Wrapping Wire
Hairpin Wire
Handle Wire
Harness Snap Wire
Hat and Coat Hook Wire
Hat Rods
Head Lining Wire
High Carbon Wire
Hog Ring Wire
Hook and Eye Wire
Hoop Wire
Hose Binding Wire
Husking Pin Wire
Key Wire
Key Ring Wire
Key Stock
Keystone Wire
Lacing Wire
Lantern Wire
Lathing Wire
Link Wire
Lintel Wire
Lock Washer
Loop Wire
Machinery Wire
Machine Screw Stock
Manufacturers' Wire
Market Wire
Mat Border Rods
Mat Wire
Mattress Wire
Metal Stitching Wire
Muzzle Wire
Nail Head Wire
Nail Wire
Neck Wire
Neck Yoke Ring Wire
Netting Wire
Nickel Steel Wire
Non-corrosive Wire
Nut Cracker Wire
No-Sag Spring Wire
Oval Wire
Oven Rack Wire
Pail Bail Wire
Pail Rim Wire
Piano Rods
Pin Wire
Pinion Wire
Pivot Wire
Pipe Winding Wire
Plow Steel Wire
Plunger Wire
Pneumatic Tire Bead Wire
Pot Chain Wire
Poultry Netting Wire
Pump Chain Wire
Rake Tooth Wire
Refrigerator Shelf Wire
Reinforcement Wire
Riveting Wire
Rivet Rods
Rivet Wire
Rock Fastener Wire
Roll Threading Wire
Rope Wire
Saddle Spring Wire
Sash Cord Wire
Scrapless Nut Wire
Scratch Brush Wire
Screen Wire
Screw Wire
Screw Driver Wire
Screw Rod Wire
Shade Roller Wire
Shelf Wire
Skid Chain Wire
Smooth Wire
Snare Wire
Soft Processed Wire
Spark Plug Wire
Spiral Hooping
Spoke Wire
Spring Wire
Stapling Wire
Stitching Wire
Stone Wire
Stove Bolt Wire
Stove Pipe Wire
Stove Rods
Straightened & Cut Wire
Strapping Wire
Stud Stock
Surveyors' Chain Wire
Tack Wire
Tag Wire
Tie Wire
Tire Bead Wire
Towel Rods
Toy Wire
Trap Spring Wire
Transom Rods
Trellis Wire
Tuning Pin Wire
Tying Wire
Umbrella Wire
Wash Boiler Wire
Weaving Wire
Welding Wire
Whip Guard Wire
Wood Screw Wire
Wrapping Wire
Zig Zag Spring Wire

new clean-sweep styling and modern power features open the way to new production peaks

ALL NEW



NIAGARA 30 AND 50 TON PRESS BRAKES*

HERE'S MEANINGFUL STREAMLINING . . . and at its very best! *Everything's inboard:* Motor, belts, flywheel, clutch, brake and gears . . . yes, even the connections, pitmans and ram adjustment mechanism. *Nothing protrudes!*

Resourceful designing has made it possible to provide heavier, deeper uprights with relatively no increase in floor space. Net result: A 50% deeper throat for larger work.

HERE'S PERFORMANCE that can't be matched! These all-new Niagara Press Brakes have a smoothness of action all their own. Niagara Power Features . . . Power Clutch, Power Brake, Power Treadle . . . assure easy, instant response to every command. The ram can be micro-jogged smoothly and softly to a layout line, or stopped on a dime at full speed!

Proved on mighty Niagara Presses, Niagara's Electro-Pneumatic Friction Clutch engages in a fraction of a second, disengages even faster, and *fails safe!* Featuring simplified construction, it's a low inertia, heavy duty unit that's designed to outperform and outlast any other press brake clutch. Friction plates automatically compensate for wear . . . no adjustment required.

Spring applied, Niagara's powerful Air Releasing Brake can't fail for it does not depend on energy (air or electricity) to bring the machine to an immediate halt.

HERE'S RUGGEDNESS to take extreme loads in stride! Niagara's solid, all-welded steel one-piece frame with integral wrap-around crown provides maximum resistance to deflection. *There's nothing to work loose!* Utmost strength and rigidity are assured.

Straddle mounted between anti-friction bearings, hardened steel gears run in a sealed oil bath. Centralized pressure lubrication delivers oil to all main bearings, connection bearings and gibs with a single shot.

PREVIEW THESE ULTRA-NEW MACHINES

Find out what they can do for you by writing for Niagara's new, illustrated Bulletin 90 today.

NIAGARA MACHINE & TOOL WORKS • BUFFALO 11, N. Y.

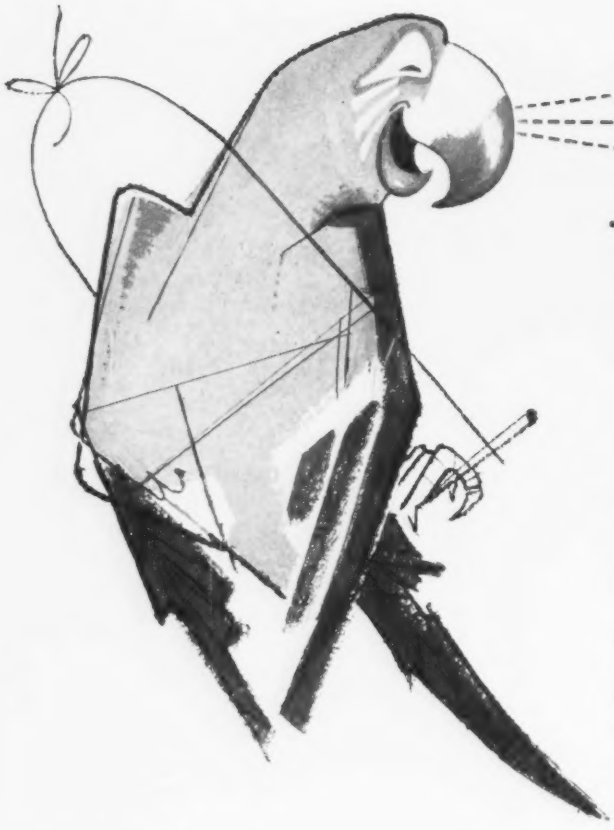
DISTRICT OFFICES

Boston • Buffalo • Cleveland • Detroit • Indianapolis • New York • Philadelphia

Distributors in principal U. S. cities and major foreign countries

America's most complete line of presses, press brakes, shears, other machines and tools for plate and sheet metal work

*Patented & Patents Pending



THERMALLOY*

...THE RIGHT WORD FOR LONG-LIFE ECONOMY IN HEAT-RESISTANT CASTINGS

First cost is only one factor in the operating economy of high-heat-resistant castings. Extra service life, obtained through the *right* combination of physical properties and casting techniques, is a much sounder gauge of over-all economy.

That's why more and more heat-treat operators are specifying Thermalloy Radiant Tubes, Retorts, Trays, Pots and other heat-treat parts. We'd be glad to show you service life case histories to *prove* their long-life economy. Contact your nearby Electro-Alloys representative, or write for the technical bulletins listed below . . . Electro-Alloys Division, 8017 Taylor Street, Elyria, Ohio.

*Reg. U. S. Pat. Off.

Thermalloy Radiant Tubes

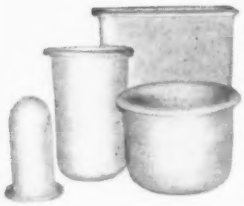
Centrifugally cast to insure uniform wall thickness; pressure tested to assure freedom from leakage; X-ray controlled to guarantee soundness. *Write for Centrifugal Casting Bulletin T-283.*

Thermalloy Retorts

Octagonal, pit-type, annealing and spiral retorts —plus baskets and spiders. Special designs and grades of Thermalloy to meet your specifications. *Write for Bulletin T-239.*

Thermalloy Trays

Experienced design know-how and casting techniques, plus Thermalloy's outstanding physical properties, mean extra service life and economy. *Write for Bulletin T-227.*



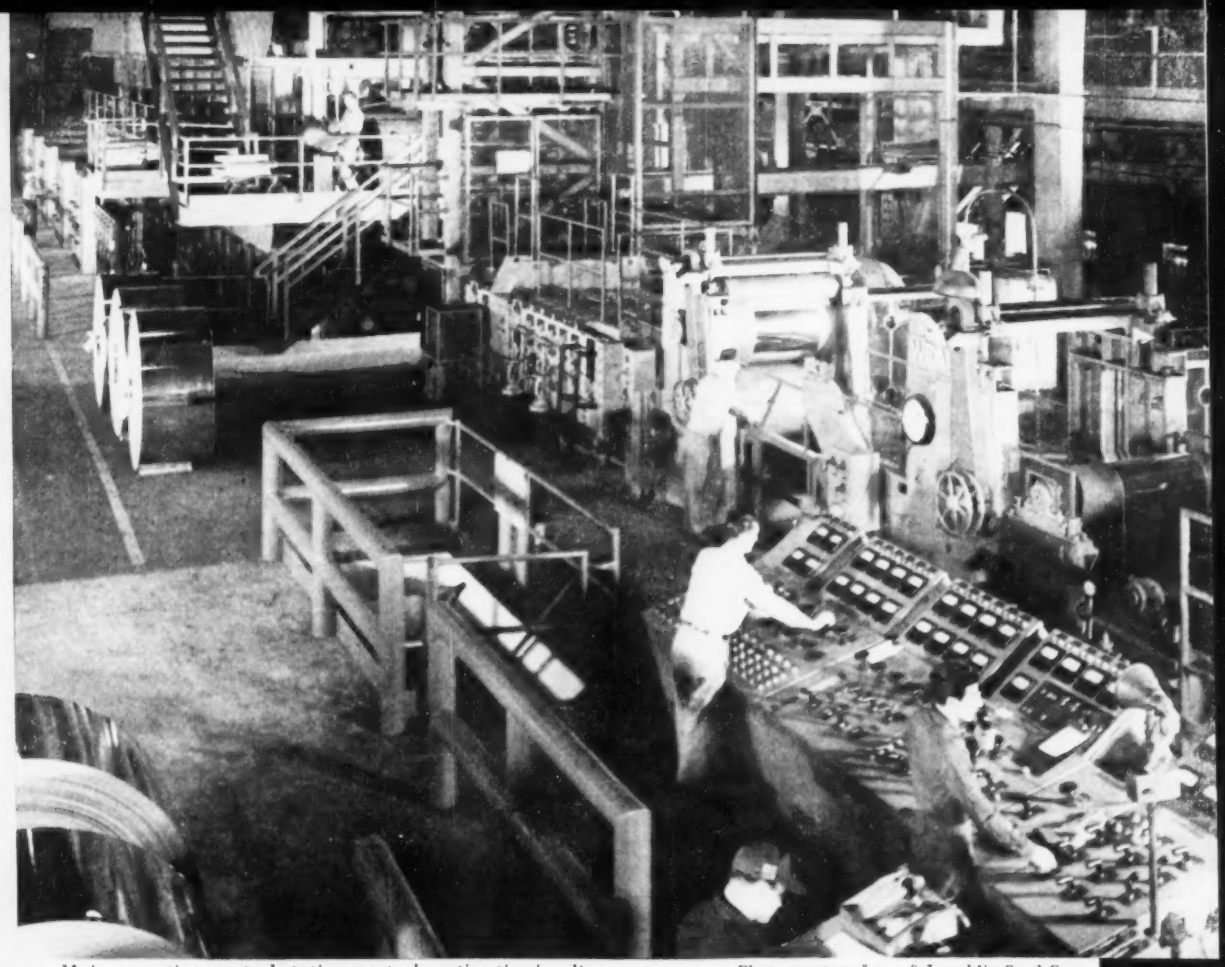
Thermalloy Heat-Treat Pots

A wide range of standard sizes, or "specials" to meet your needs— all cast of long-lasting Thermalloy heat-resistant alloys. X-ray inspected, pressure tested. *Write for Bulletin T-234.*

AMERICAN Brake Shoe COMPANY **ELECTRO-ALLOYS DIVISION** Elyria, Ohio

Faster, better tinplate production through

WEAN creative engineering



Main operating control station controls entire tinning line. Photo courtesy Jones & Laughlin Steel Corp.

• 75% of all electrolytic tin plate is produced on Wean engineered lines . . . and for a very good reason. Wean, a pioneer in continuous coating lines, has played a major role in bringing tin plate production equipment to its present high degree of efficiency.

Some time ago, for example, Wean adapted automation to tin plate production—enabling lines to produce continuously—establishing records both for speed of production and quality of product; in short, enabling tin plate producers to keep abreast of modern industrial demands.

So, if you're looking for tin plate facilities to meet today's exacting requirements . . . look to Wean, world's foremost designer of electrolytic cleaning and tin plate equipment.

339

THE WEAN ENGINEERING COMPANY INC., WARREN, O.

Scott Wipers* are lint-free, 2-ply paper—Perf-embossed,® a special process that gives superior cleaning action, faster absorption. At Wilkening, Scott Wipers are used to wipe grinding machines, lapping machines, inspection tables, the piston rings themselves, precision gages, hands, faces!

*PATENT PENDING

WIPER PROBLEM? Look what Wilkening did with Scott Wipers!

Famous Pedrick piston rings, precision-engineered for automotive, aircraft and industrial engines by Wilkening Manufacturing Company, at Philadelphia, Pennsylvania, start in Wilkening's own foundry, are finished in this firm's own machine shops. Wilkening has used Scott Wipers *for 4 years*, with outstanding results.

Soft, absorbent Scott Wipers were first tried here as an economy measure. The test took place in the grinding department. After a 3-month trial, Scott Wipers were placed throughout the plant. Today, Mr. H. O. Moffett, Factory Manager, says: "We've had an annual saving of 80% since switching to Scott Wipers."

The workers like Scott Wipers, always fresh from a box near each work station—and carrying no foreign particles to cut or scratch! The plant is kept neater, with no unsightly piles of oily cloths. And Scott Wipers meet wiping requirements in all applications, in this extremely diversified shop operation. For more facts, call *your* local Scott man, or write Scott Paper Company, Department IA-77, Chester, Pennsylvania.

SCOTT PAPER COMPANY

Makers of the famous Scott paper products you use in your home. Consult TV schedules for Scott's program, "Father Knows Best."

YOUR GUIDE TO COLUMBIA WATER HARDENING TOOL STEEL GRADES

TYPE AND GRADES	DESCRIPTION	HARDENING RANGE	QUENCH	TEMPERING RANGE	USEFUL HARDNESS
W1 Grade 1 Columbia SPECIAL	Best quality water hardening tool steel — meets all metallurgical tests	1420° F. to 1530° F.	Water and Brine	350° F. to 500° F.	67/59 Rc
W2 Grade 2 VANADIUM EXTRA	Vanadium treated modification of Columbia EXTRA, fine grained, tough, long wearing carbon tool steel	1425° F. to 1500° F.	Water and Brine	350° F. to 500° F.	64/58 Rc
W5 Grade 2 WATERDIE EXTRA	Chromium alloyed Columbia EXTRA for increasing depth of hardness and wear properties	1475° F. to 1525° F.	Water and Brine	350° F. to 500° F.	65/56 Rc
W1 Grade 2 Columbia EXTRA	Extra quality straight carbon tool steel — meets hot-etch and hardenability tests, wide range of uses	1420° F. to 1550° F.	Water and Brine	350° F. to 550° F.	65/57 Rc
W1 Grade 2 Columbia EXTRA HEADERDIE	Selected carbon with controlled hardenability to meet severe physical requirements of cold heading Metallurgically controlled for center soundness	1470° F. to 1550° F.	Water and Brine	400° F. to 530° F.	63/58 Rc
W2 Grade 3 VANADIUM STANDARD	Vanadium treated Columbia STANDARD — a shallow hardening fine grained tool steel for general purposes	1420° F. to 1470° F.	Water and Brine	400° F. to 550° F.	63/56 Rc
W1 Grade 3 Columbia STANDARD	A good quality reliable straight carbon, general purpose tool steel for short run tools not requiring the high physical properties	1420° F. to 1470° F.	Water and Brine	400° F. to 550° F.	63/56 Rc

COLUMBIA TOOL STEEL COMPANY • CHICAGO HEIGHTS, ILLINOIS

CENTRAL OFFICE AND WORKS, CHICAGO HEIGHTS, ILLINOIS — BRANCH STOCKS IN THE FOLLOWING CITIES:

1957

Chicago 32
4832 S. Kedzie Ave.
Phone LAfayette 3-3632

Cincinnati 25
2716 Spring Grove Ave.
Phone MUlberry 1-8400

Cleveland 14
1640 St. Clair Ave.
Phone MAin 1-1785

Detroit 3
121 Oakman Blvd.
Phone TUlsa 3-3770

Los Angeles 22
6955 E. Bandini Blvd.
Phone RAymond 3-4684

Milwaukee 4
426 S. Sixth St.
Phone BRoadway 6-0255

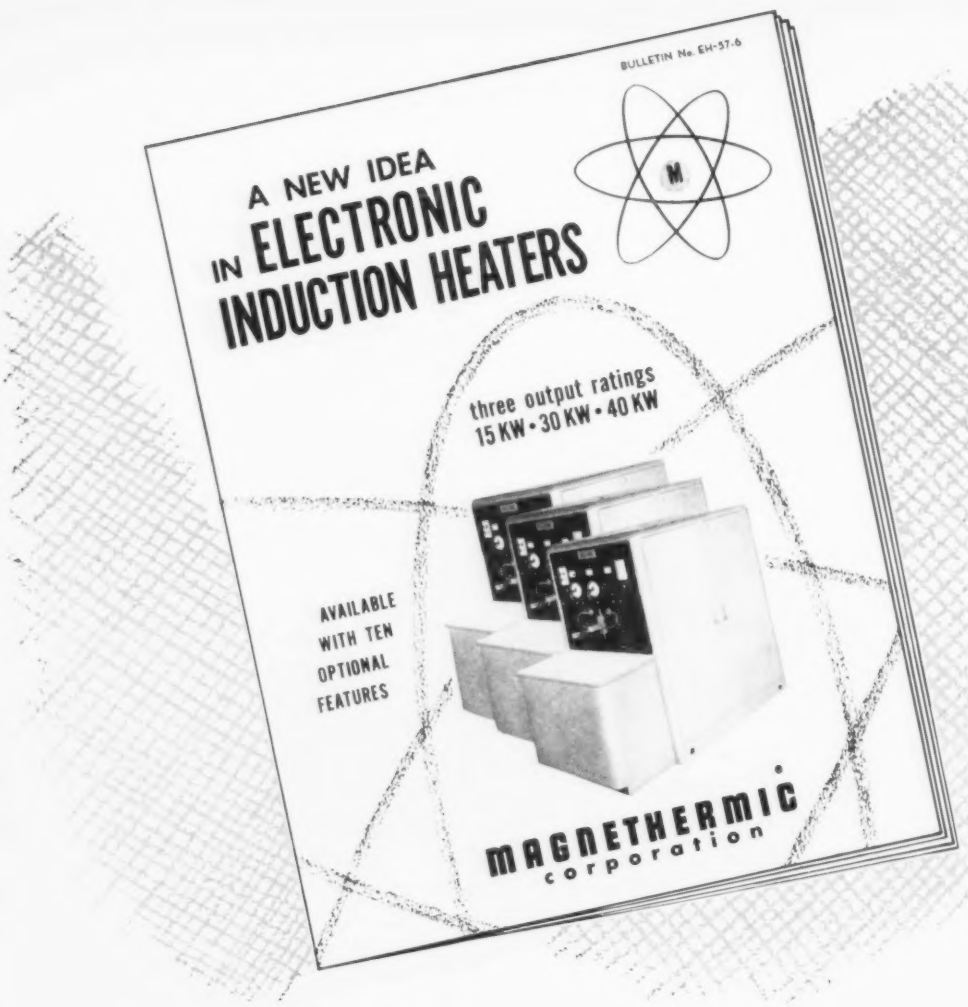
St. Louis 13
5118 Easton Ave.
Phone FOrest 1-0641

REPRESENTATIVES IN THE FOLLOWING CITIES: Dayton, Erie, Grand Rapids, Hartford, Indianapolis, Louisville, Moline, Newark, Portland and St. Paul

TOOL COLUMBIA STEELS

COLUMBIA TOOL STEELS

DIE STEELS: Superdie — Atmodie — E-Z-Die Smoothcut — Exl-Die — CEC Smoothcut HOT WORK STEELS: Clarite HW — Formite #3 — Formite #2 — Molite HW10 — Vanadium Firedie — Alcodie — Firedie HIGH SPEED STEELS: Clarite — Vanite — Acmite — Cobite — Maxite — Molite Smoothcut — Molite #3



New Approach to Electronic Induction Heaters

For the first time, an electronic induction heater can be pinpointed to specific conditions or operation —literally a custom design at reasonable cost.

No two induction heating processes are the same. For optimum performance, each induction heater should be hand tailored to the job. The Magnethermic plan of adding optional features to a standard heater results in a custom design at low cost. Magnethermic's "building block" principle for electronic induction heaters provides the flexibility needed for low unit cost.

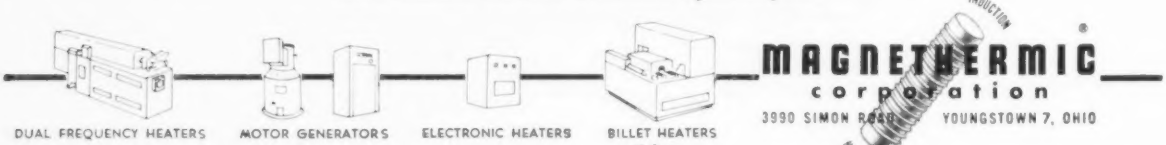
Here are a few of the optional features which can be added to the standard heater:

- **Built-in Output Transformer**
- **Stepless Thyraton Power Control**
- **Built-in Water Cooling System**
- **Dust-proof Cabinet and Air Cooling System**

All ten optional features and the standard heater are detailed in this new bulletin, available upon request. The bulletin contains ratings, specifications, and such useful data as a frequency selector chart, surface hardening table.

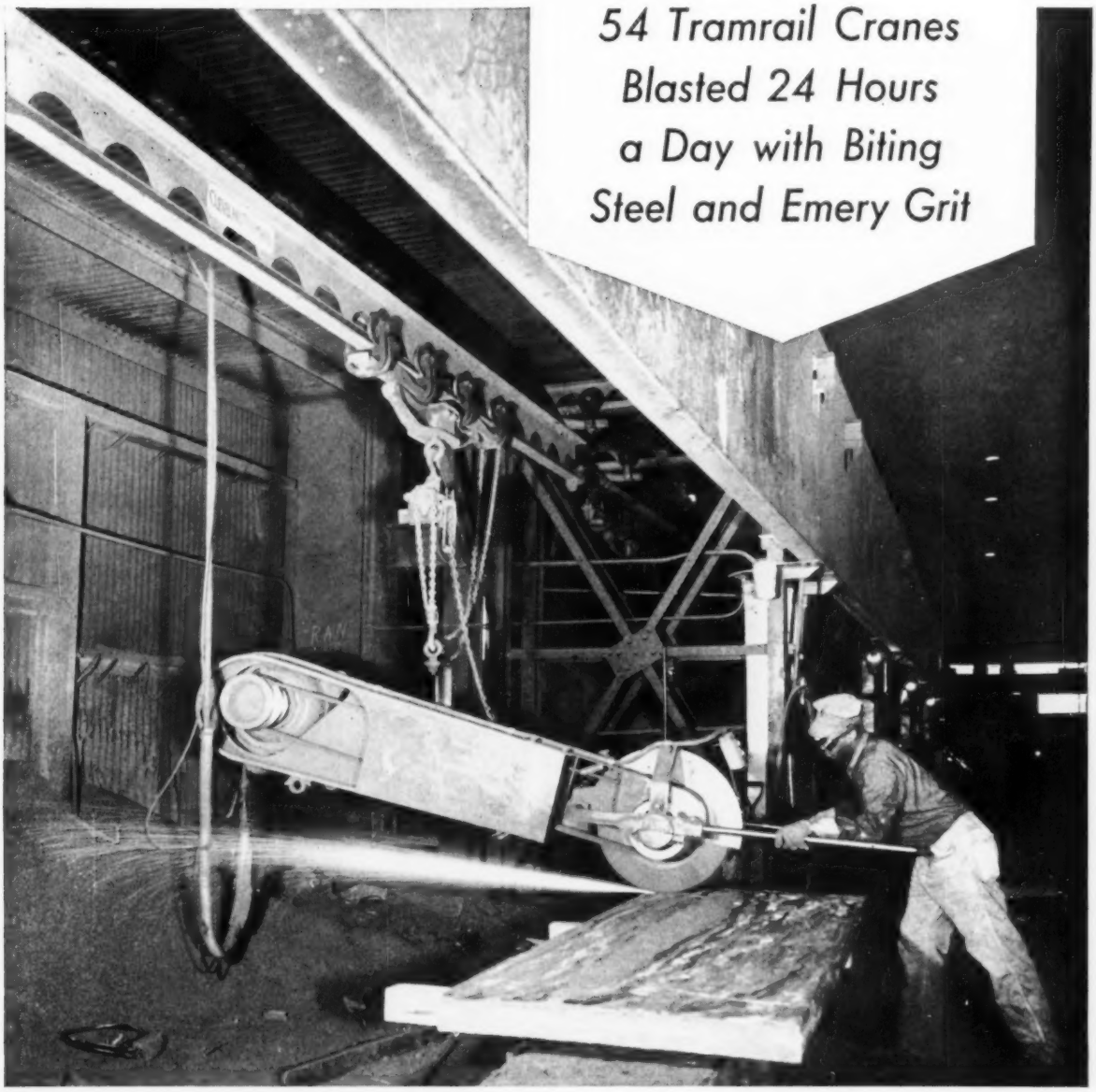
Heaters available from stock in three ratings— 15 KW, 30 KW, 40 KW output.

Address your electronic induction heater inquiry to Magnethermic, Youngstown, Ohio.
New Bulletin EH-57-6 available upon request.



MAGNETHERMIC®
corporation
3990 SIMON ROAD YOUNGSTOWN 7, OHIO

Talk About *Tough* Working Conditions



54 Tramrail Cranes Blasted 24 Hours a Day with Biting Steel and Emery Grit

FOR years Cleveland Tramrail cranes have been handling swing grinders at a large Pennsylvania steel mill.

Despite the continuous storms of fine, penetrating, corrosive dust, the cranes operate with negligible maintenance.

The design and quality of Cleveland Tramrail equipment is of importance for every job, but on the tough ones like this is where these factors quickly prove their worth.

Cleveland Tramrail cranes are particularly well suited for swing grinder operation because of their free easy movement in any direction. This permits flat grinding over a wide area and avoids "dishing" of grinder wheel into the metal. Easy crane operation greatly reduces worker fatigue.

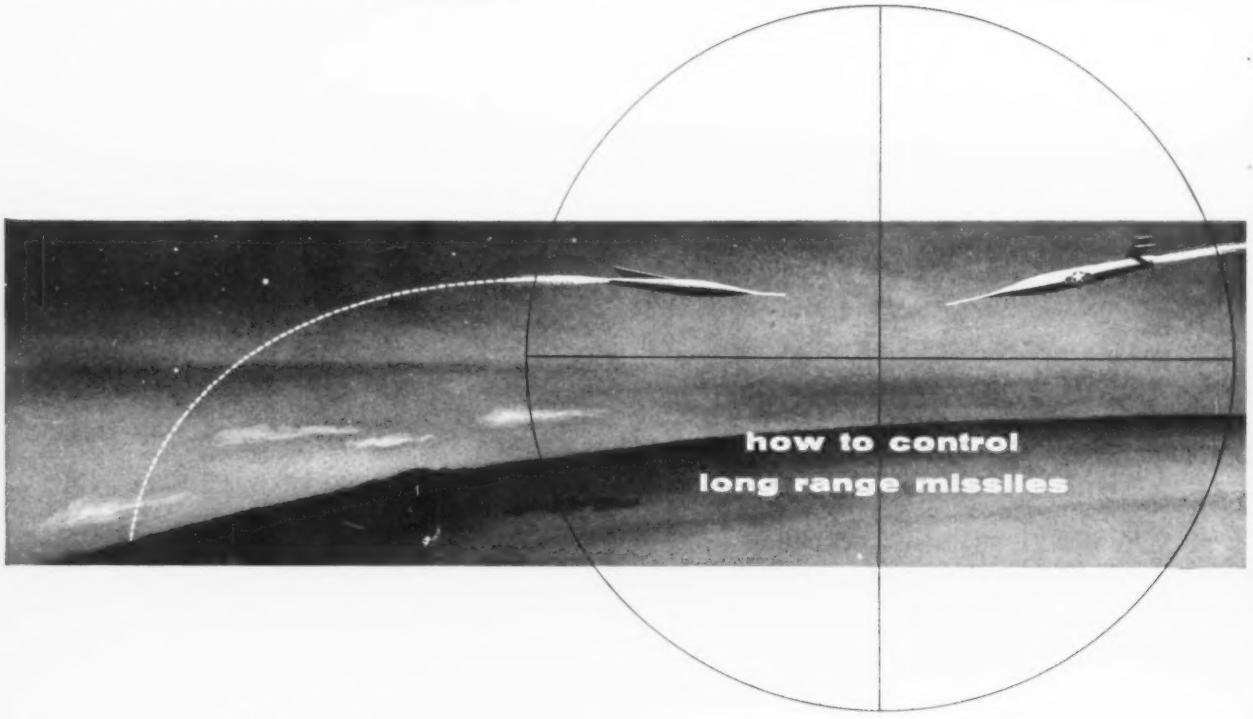
Write for free Engineering and Application Booklet No. 2008. Packed with valuable information.

CLEVELAND TRAMRAIL

Overhead Materials Handling Equipment

CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 4821 E. 290 ST. • WICKLIFFE, OHIO

a new concept in gear accuracy!



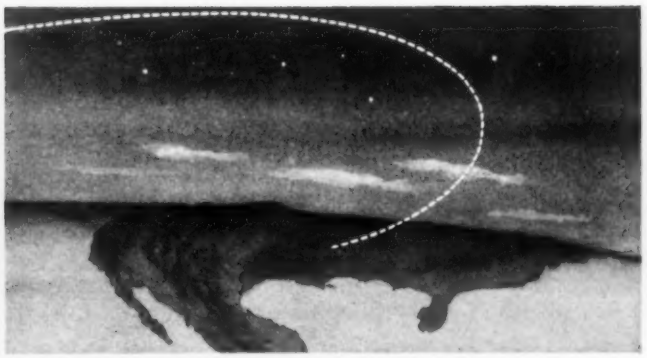
The control systems of modern missiles and aircraft are the "brains" which guide them to the target. Higher speeds, longer ranges and increased altitudes necessitate much more accurate control systems than in the past. One key to greater accuracy is gears made to previously unobtainable tolerances — gears which have an effective angular error of transmission of no more than ten seconds. And since speeds and ranges are increasing almost daily, the trend is toward closer and closer tolerances.

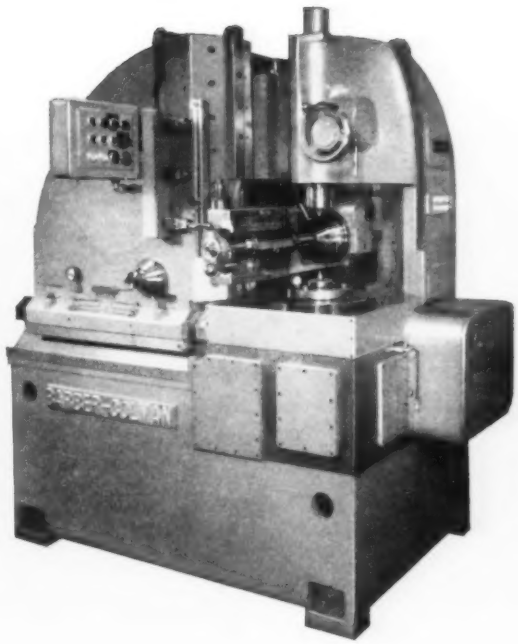
Barber-Colman engineers, working closely with Sperry Gyroscope engineers, have developed a machine and hobs which cut gears to closer tolerances than ever before produced. This machine is known as the "Ultracision" hobbing machine, and it cuts gears which will transmit uniform motion within ten seconds of arc or less, on a gear of 4" diameter. This machine is now hobbing gears *on a production basis* in the Sperry plant.

What does an error of ten seconds mean? It means that a plane flying 5000 miles would be within 400 yards of target at destination if dependent on gear accuracy alone in the navigation system. Five years ago, a one-mile error was good enough, but it is not today. More accurate gears are a primary requirement for these precision controls.

We have been asked to compare ten seconds of angular error to a given amount of total composite error. Such a comparison is not practical because they involve two entirely different methods of inspection. Theoretically, one function of a gear is to transmit uniform angular rotation within the required limits of accuracy. Therefore, the measurement of angular error provides a direct method for determining the rotational accuracy of the gear. Total composite error is the amount of center distance variation obtained by rolling a gear with a master gear or rack. This method provides a relative measure of gear accuracy.

In trying to obtain the very finest gears, Sperry engineers have developed a method of inspecting angular errors with fantastic accuracy. They can now measure angular error between any corresponding points on gear teeth profiles to an accuracy of one-half second of arc. This method measures the effect of spacing, lead and profile errors. Presently allowable errors cannot exceed ten seconds of true angular displacement at any diameter along the involute.





One of the most important features of the "Ultracision" hobbing machine is the accuracy of the relative rotation between the work spindle and the hob spindle. This is probably the most important single feature affecting accuracy of gears produced. This relative rotation was inspected dynamically by means of a theodolite and a camera. All other machine elements were made to extremely small tolerances, resulting in hobbed gears within the required tolerance of ten seconds.

Original hobs for this machine were made to one-half the tolerances of Class AA hobs. However, tests showed that hobs made to Barber-Colman Class AA tolerances were accurate enough for this application, and they are now being used on this machine. Although Class AA tolerances are used, the hobs are really more accurate than these tolerances would indicate because the diameter is over twice the diameter of a standard hob of an equivalent pitch.

Since Barber-Colman engineers have designed and built the hobbing machine which cuts the world's most accurate gears, they have the experience to recommend the machine to produce gears to your accuracy requirements. In most cases, standard-type machines will satisfy your requirements. On our most accurate standard-type machine, we guarantee that it will hob a 4" PD, spur gear within .0002" adjacent and .0004" non-adjacent spacing error.

We invite you to submit your gear specifications and problems for analysis and recommendation by our engineers.

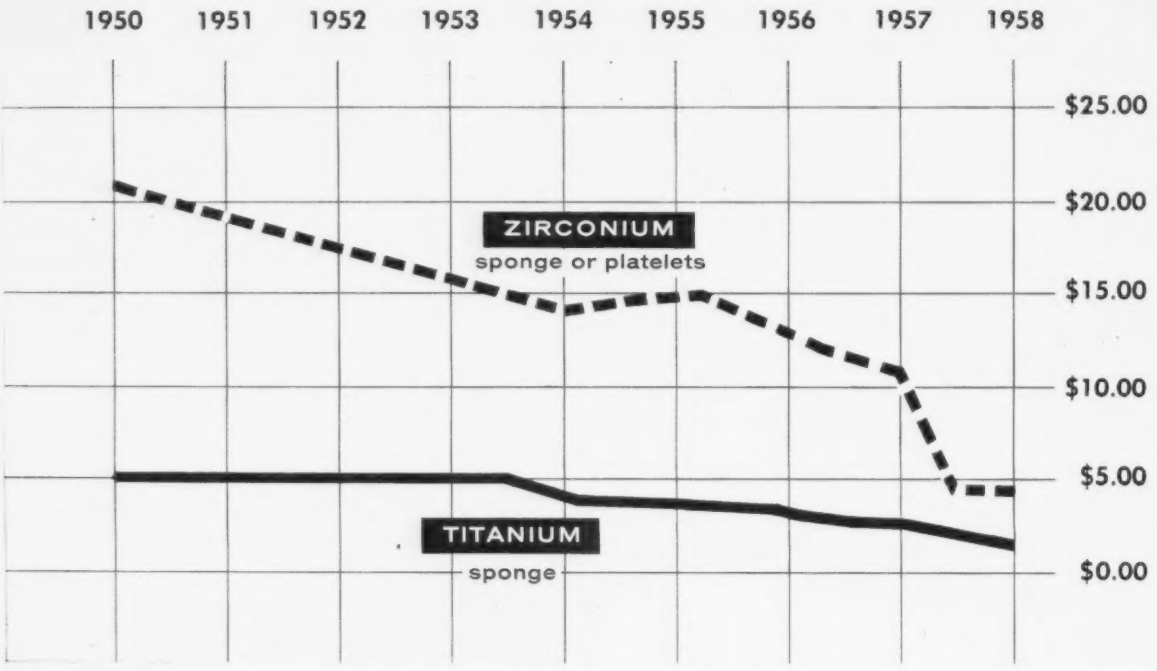
For more information about the "Ultracision" hobbing machine, write for descriptive literature.

BARBER-COLMAN COMPANY

647 ROCK STREET • ROCKFORD, ILLINOIS

Hobs • Cutters • Reamers • Hobbing Machines • Hob Sharpening Machines

BARBER COLMAN



Available soon at lower prices

ZIRCONIUM AND TITANIUM FOR INDUSTRIAL USE

Now is the time to do some new thinking about titanium and zirconium. These metals with their many advantages will soon be *much more plentiful* at *much lower cost*. Reason: U.S.I. will be coming onstream shortly with a 10-million pound per year titanium plant AND a zirconium plant which will supply one million pounds of that metal to industry.

Zirconium from the new plant will sell for considerably less than current prices. Here's why: U.S.I. will use the most economical production technique ever developed for reducing metallic chlorides — a semi-continuous sodium reduction process. This process has possibilities of reducing titanium prices in the future as well.

So think again about zirconium and titanium for industrial equipment. Remember that they are lighter than other metals — a pound goes farther. Remember that they are more durable than other metals—a fabricated product lasts longer.

Write to Bill Greenleaf, U.S.I. Manager of Metals Department, for more information on these new metals from U.S.I.

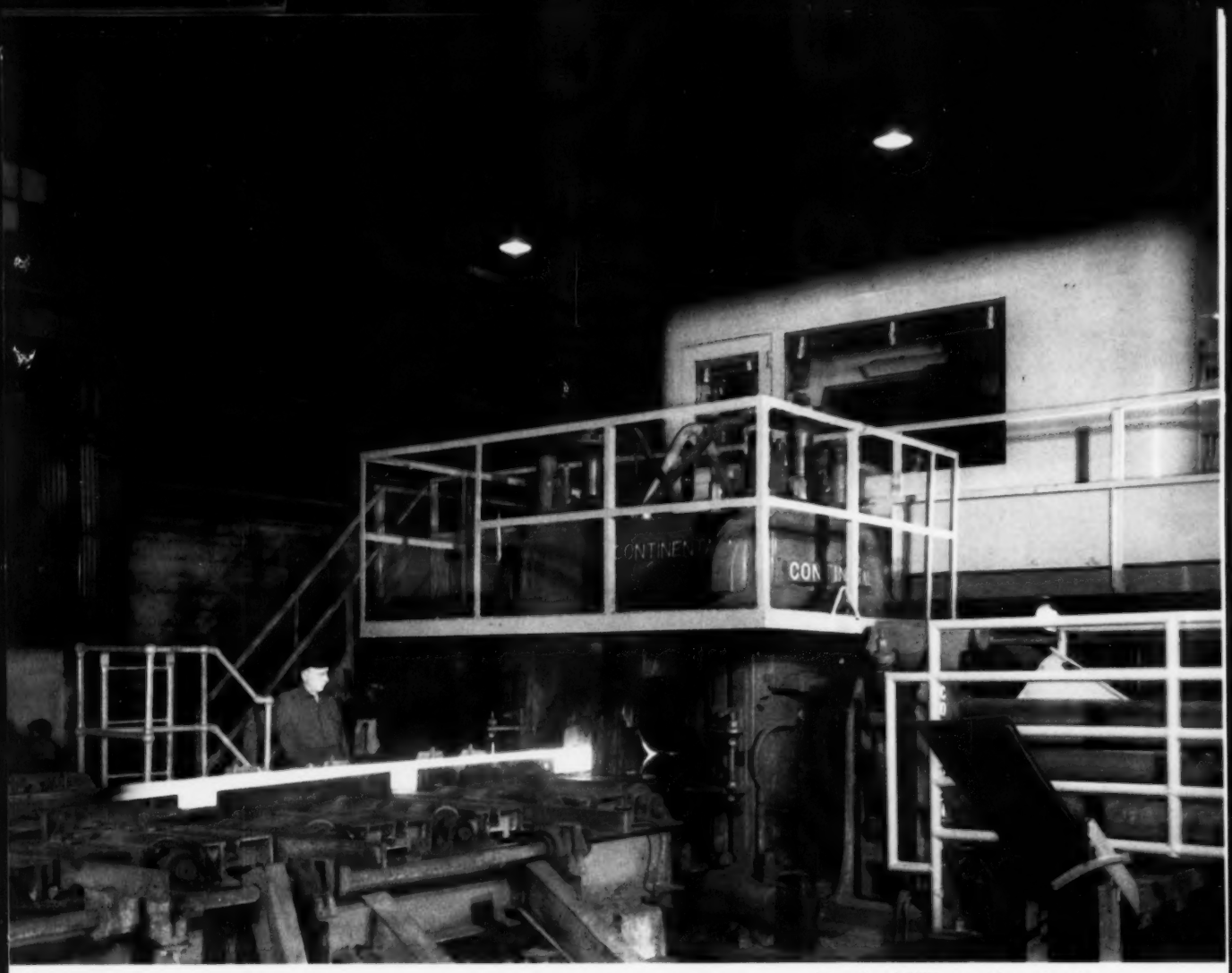
WHAT CAN YOU DO WITH TITANIUM AND ZIRCONIUM AT LOWER PRICES?

In the future titanium sponge prices are expected to drop to about $2.00 a pound, with a corresponding drop in the prices of mill products. At these prices the exceptional strength-to-weight ratio and corrosion resistance of titanium can be put to work in the aircraft, marine, automotive, chemical and allied fields.

Or consider the eventual price of U.S.I. commercial grade zirconium: an estimated $3.00 a pound for platelets and 2 or 2½ times this price for the average mill product. This price will make zirconium practical for chemical equipment, marine equipment, food equipment and surgical metals among other uses. Zirconium has light weight, high structural strength, excellent corrosion and heat resistance; and reactor-grade zirconium has outstanding nuclear properties.

U.S.I. INDUSTRIAL CHEMICALS CO.

Division of National Distillers Products Corporation
99 Park Avenue, New York 16, N. Y.



Merchant Mill roughing stand

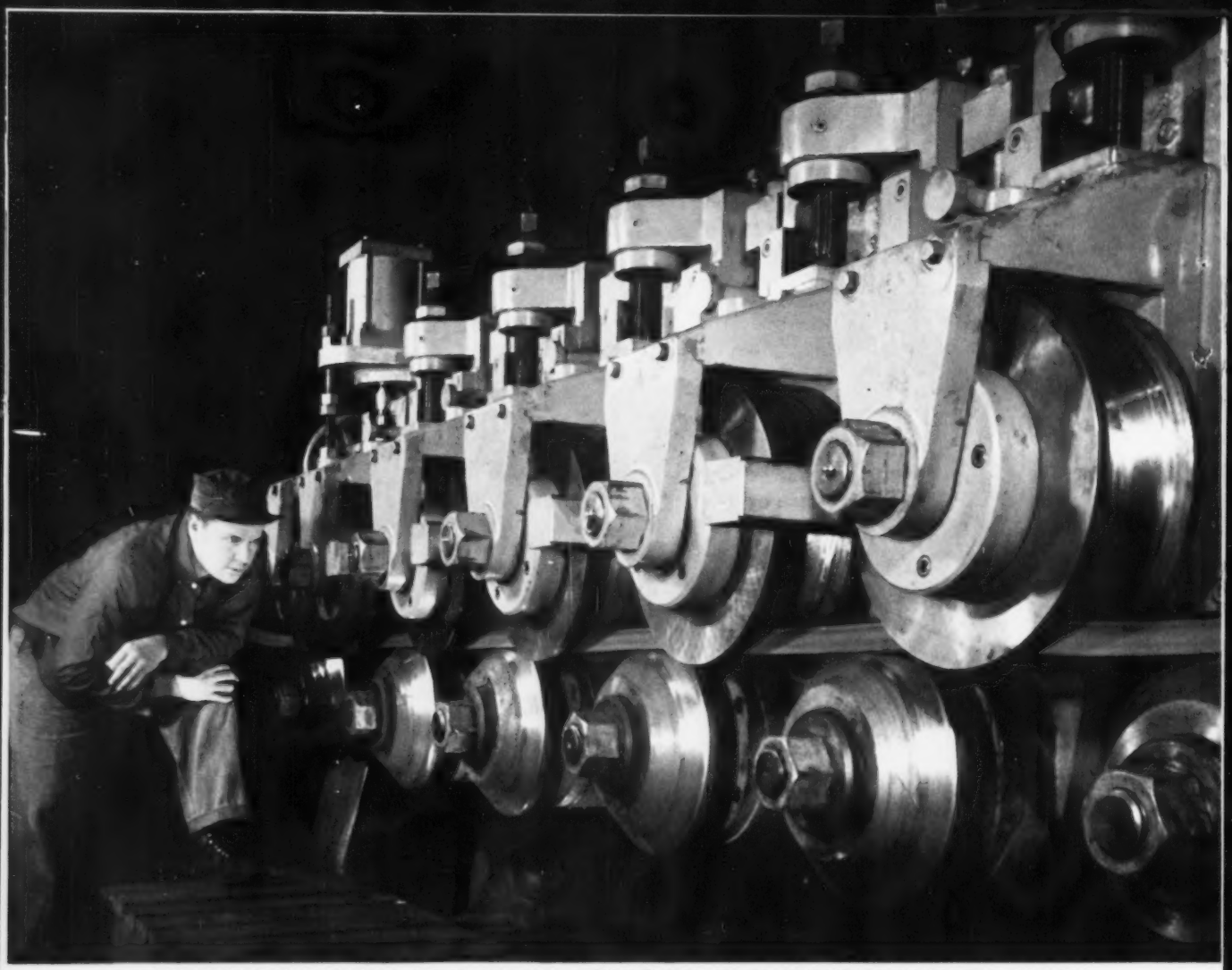
BLAW-KNOX
MERCHANT MILLS

Blaw-Knox designs and builds Merchant Mills in a complete range of sizes, complete with auxiliary equipment to meet individual requirements. Other Blaw-Knox equipment for the metals industry includes complete rolling mill installations including all auxiliary equipment for ferrous and non-ferrous metals, iron, alloy iron, and steel rolls, Medart cold finishing equipment, carbon and alloy steel castings, fabricated steel plate or cast-weld design weldments, steel plant equipment, heat and corrosion resisting alloy castings.

BLAW-KNOX

BLAW-KNOX COMPANY

Foundry and Mill Machinery Division
Blaw-Knox Building • 300 Sixth Avenue
Pittsburgh 22, Pennsylvania



Blaw-Knox Medart straightener installed at Jessop Steel Company's Bar Mill at Washington, Pennsylvania

BLAW-KNOX Medart straightener cuts time 75% on stainless bars and shapes!

This 11-roll Blaw-Knox–Medart shape straightener installed at Jessop Steel's bar mill does its job 75% faster than the equipment it replaced. This increased performance is due to two exclusive Medart features. All straightening is done in a single pass, cutting handling time to the bone. And set-up time is only a matter of a few minutes, can be accomplished easily to handle a wide variety of flats, squares, and angles.

Profit-wise companies throughout the industry are experiencing results like this on *tough* straightening jobs as well as standards.

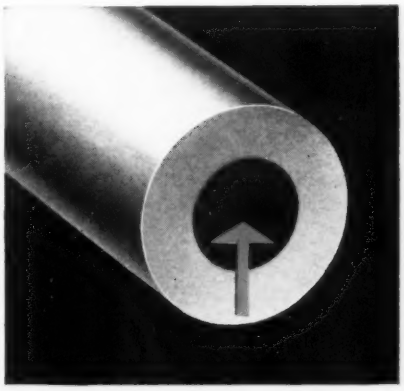
Blaw-Knox–Medart machines are the most complete line of shape straighteners in the world. Their exclusive features are engineered for uniform, high output. You can get any combination of overhung or yoke-mounted rolls, fixed or variable centers, for fast, one pass straightening of square or hex's from ¼" to 4" and flats up to 1" x 6". Medart machines for larger sections such as structural shapes can be specially adapted for your requirements. Your Blaw-Knox–Medart sales-engineer can help you apply Medart machine exactly suited to your operations.

BLAW-KNOX

BLAW-KNOX COMPANY

Foundry and Mill Machinery Division
Blaw-Knox Building • 300 Sixth Avenue
Pittsburgh 22, Pennsylvania

a hole here is a hindrance...



a hole here is a help

Crucible Hollow Tool Steel sections, cut to length, save you time and money when you make ring-shaped, or tubular parts, or tools with a center hole. Because these tool steel sections are already drilled through when you get them, you don't have to bore, drill, cut-off or rough-face. Production time goes down, and most scrap losses are eliminated.

Five popular grades of Crucible tool steel are available immediately from warehouse stock, in hollow-disc form. They are KETOS oil-hardening, SANDERSON water hardening, AIRDI 150 high-carbon, high-chromium, AIRKOOL air-hardening, and NU-DIE V hot-work tool steels. Order the O.D. and I.D. combination, and length and thickness you need.

Let your Crucible representative show you how hollow tool steel sections can reduce production time, and save you money. *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor—Railway & Power Engineering Corp., Ltd.

PERFORMANCE REPORT:

Blanchard No. 18 surface grinders have a long history of outstanding performance. They're economical, extremely accurate and highly productive on a wide variety of jobs.

V-490

STANDARD STEEL WORKS DIVISION

BALDWIN-LIMA-HAMILTON CORPORATION

BURNHAM, MIFFLIN COUNTY, PA

November 26, 1956

Machinery Associates, Inc.
325 E. Lancaster Avenue
Wynnewood, Pa.

Attention: Mr. C. Denson Day, Vice President

OUR PURCHASE ORDER 8781-4576
YOUR ORDER W2-1-809

Gentlemen:

In response to your letter of October 12, 1956 relative to the No. 18 Blanchard High Power Vertical Surface Grinder which you furnished to us on the above order, I wish to advise that this machine has been entirely satisfactory. The machine was purchased primarily for grinding form and hollow bore cutters for our machine shops and the machine was installed in our Small Tool Department. We estimate that the savings which we have already experienced will allow us to amortize the machine in a period of approximately one year. Since the work load on cutters alone kept the machine busy only approximately one-third of the time, we have been able to do additional grinding which was formerly done on other machines and have been able to realize the same economies as we did on the grinding of the cutters.

Yours very truly,

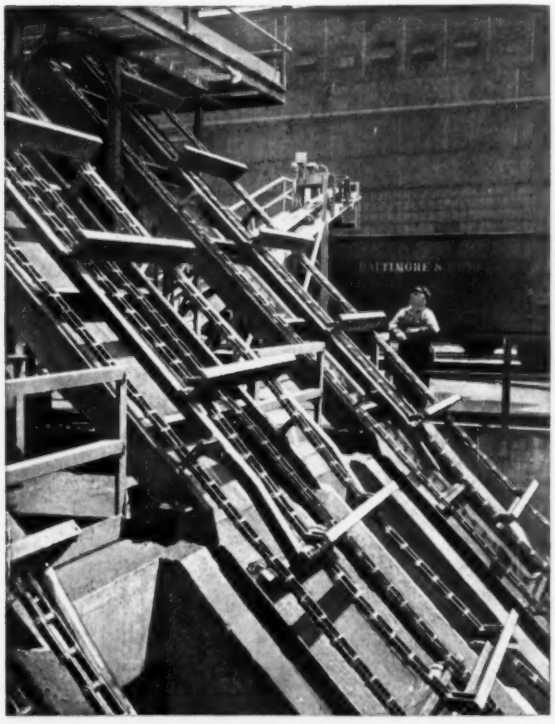
W. E. Shissler, Jr.
Chief Engineer

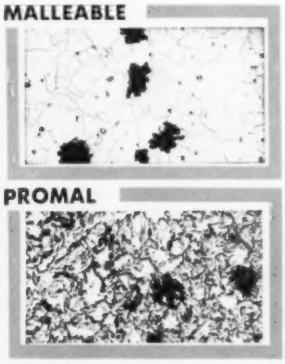
PUT IT ON THE BLANCHARD

Send today for your free copies of "Work done on the Blanchard", fifth edition, and "The Art of Blanchard Surface Grinding", third edition.

THE BLANCHARD MACHINE COMPANY
64 STATE ST., CAMBRIDGE 39, MASS., U.S.A.

Specify longer-lasting Link-Belt Promal chains for extra durability





MICROPHOTOS show difference between ordinary malleable iron and Promal. Upper—white areas in malleable microphoto represent "free-iron" . . . black shows soft nodules of carbon. Lower—the dark areas in the Promal structure show stronger, stiffer reinforcing material which strengthens metal and resists distortion and wear.

◀ **UP TO 475 TONS** per week of steel mill scale are recovered by this Link-Belt system. Promal chain on Straightline Collector moves scale from settling tanks to discharge conveyor. Promal is especially suitable for long, heavy-duty conveyors and elevators.

Specially heat-treated malleable iron provides extra wear resistance

Fewer conveyor shutdowns and minimized replacements are economies realized by users of Link-Belt Promal chain. Its greater strength absorbs continuous impact loads — and wear resistance supplies the durability to cope with severe abrasion.

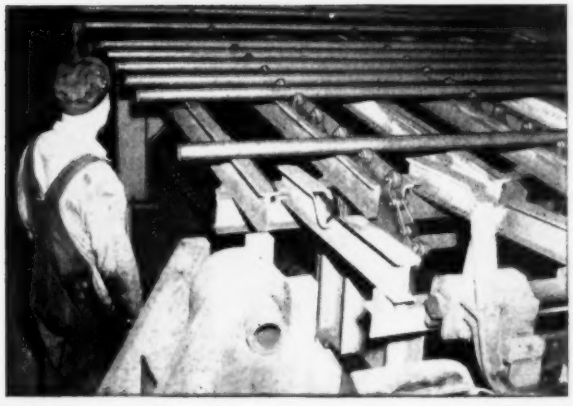
Promal is more than a partially annealed or surface-hardened malleable iron. Developed by Link-Belt, this specially heat-treated malleable iron is actually transformed into a metal of radically different physical properties. Promal, because of uniform micro-structure throughout its whole section, provides greater ultimate strength, higher yield point, exceptional fatigue resistance and a remarkable capacity to withstand abrasion.

For unusually abrasive or mild corrosive conditions, Promal chain can be furnished with "file-hard" surfaces. Copper bearing or special alloy content also available.

Where and how to apply Promal in the metal working industry

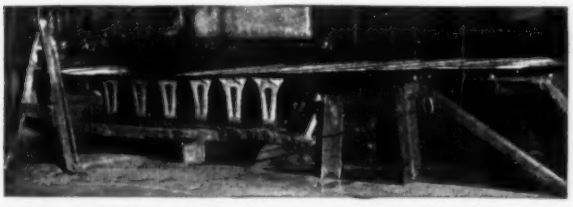
Choose Link-Belt Promal chains for highly abrasive conditions—for extra strength and wear resistance demanded by heavy loads or long, sliding conveyors. They last much longer . . . cost but a little more.

The wide range of Link-Belt chains available in Promal includes all types of cast and combination chains.



Promal chain controls uniform cooling of pipe

An inclined conveyor, using Link-Belt Class 1100 Promal chain with attachments, permits an Ohio steel mill to control cooling of longer tubes than previously possible. Pipe is received from hot finishing operations at temperatures up to 1800 F. Controlled chain speed permits uniform cooling of outer tube periphery.



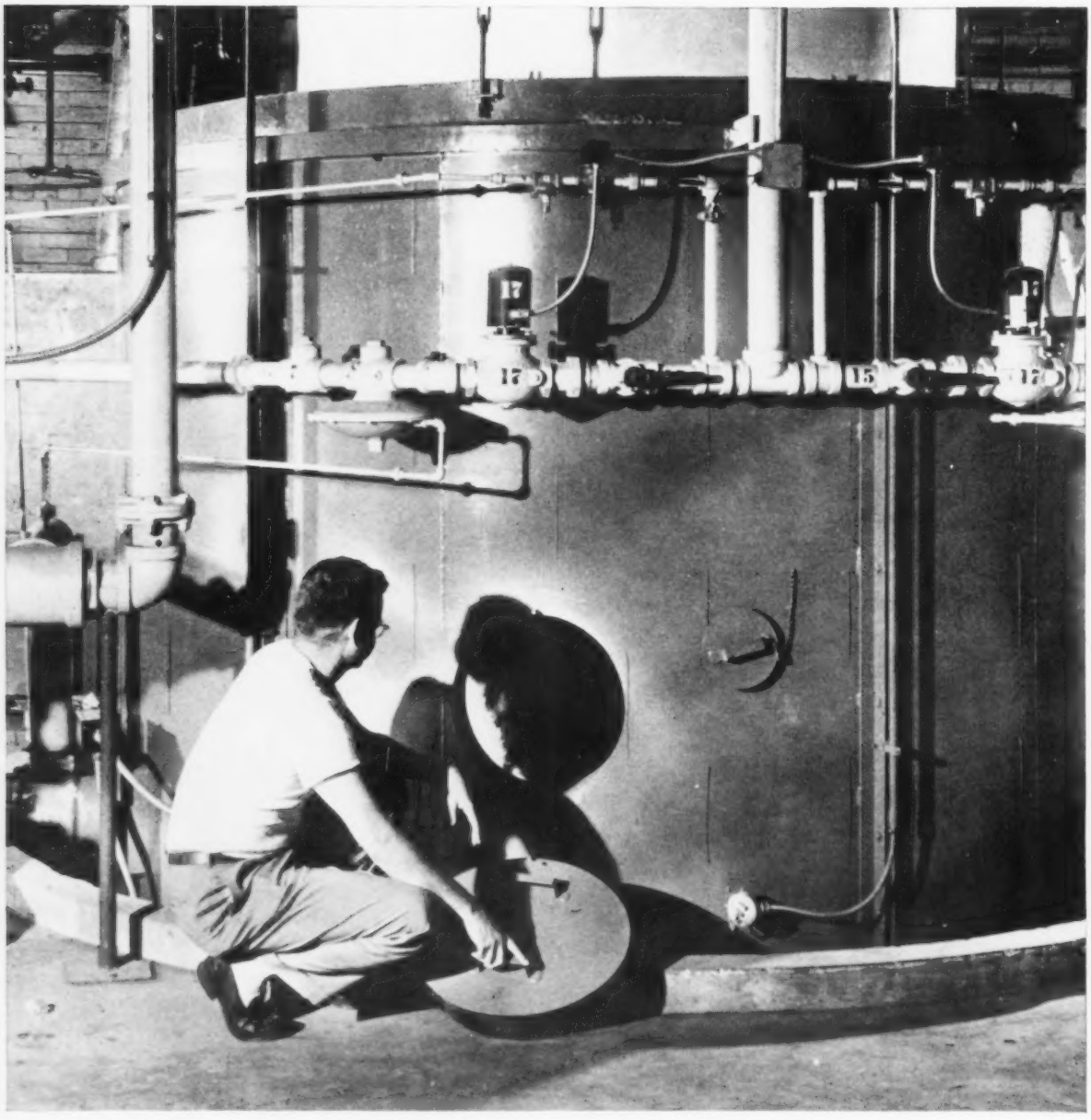
HEAT-RESISTANT PROMAL is recommended for temperatures up to 1000 F. This SMGL-618 Promal chain conveyor with riser attachments picks up and conveys sheet steel through furnace. Chain has operated continuously for two years without failure.

HEADQUARTERS for chains, sprockets and other Link-Belt conveying and mechanical power transmission products is your nearby Link-Belt factory branch store or authorized stock-carrying distributor.

LINK-BELT

CHAINS AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 14,281



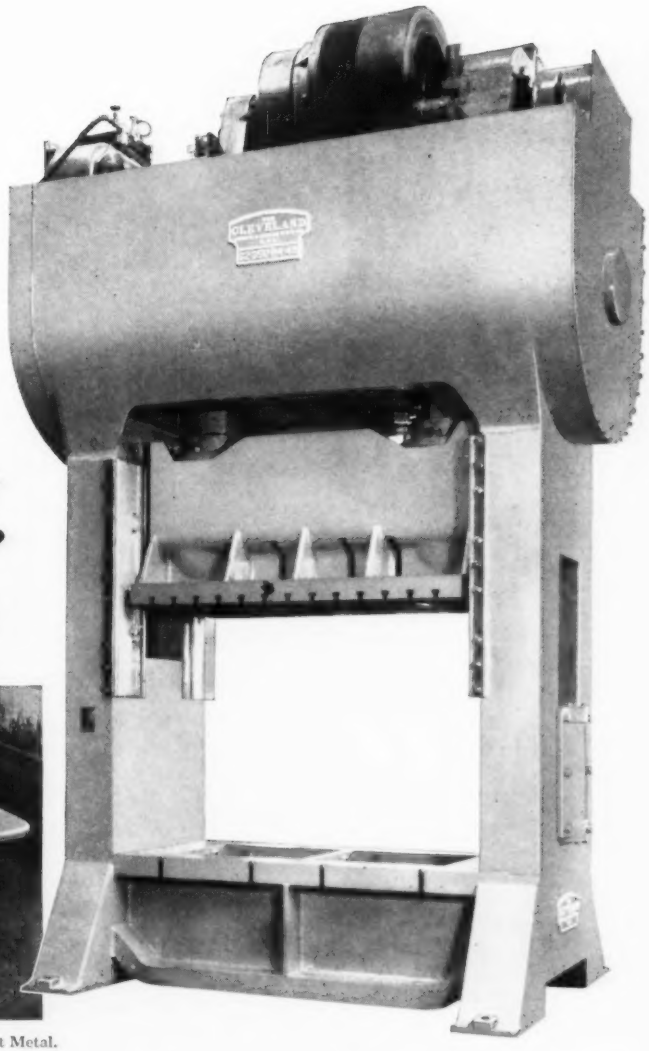
Glidden doubles production...thanks to GAS

During the last few months, production of polyester resins and other paint bases at the Glidden Company's Wilhelm Division, Reading, Penna., has been doubled—thanks to their new Gas-fired, radiant batch furnace designed and installed by Blaw-Knox Company.

The location of the Gas burners and the arrangement of the furnace interior surface are engineered to radiate evenly diffused heat to the exposed surface of the kettle. This design assures Glidden of accurate temperature control, significant fuel savings, low initial investment and low maintenance. From a cold start, this Gas furnace can reach full operating temperature in a matter of minutes . . . and cool within 30 seconds after the Gas supply is shut off—perfect controllability.

For information on how you can achieve similar savings and efficiency in your production operations, contact your Gas Company's Industrial Specialist who will be glad to discuss the advantage of Gas and Gas-fired industrial equipment with you. *American Gas Association.*

See Playhouse 90 with Julia Meade on CBS-TV. Watch local listings for time and station. Sponsored by your Gas Company and the Gas Industry.



Streamlined Cleveland Presses

Stampings are an important part of smartly styled office furniture by Art Metal.

offer maximum performance...lower production costs!

The many production and design advantages of stamped metal parts are readily apparent in modern office equipment. Stampings have contributed functional smart styling . . . smooth durable finishes. Weight is often reduced with no sacrifice of strength.

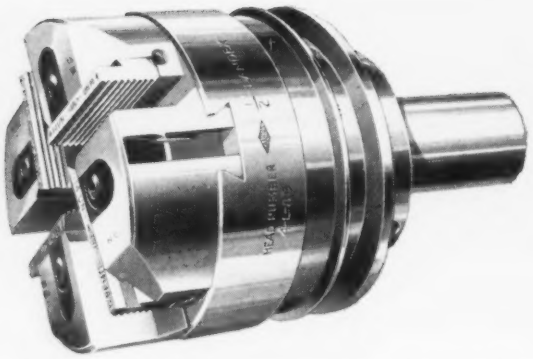
Cleveland Presses improve stamping quality . . . keep production costs down! Simplified, rugged construction of every Cleveland Press gives you reserve capacity for added dependable performance. Sturdy cast or welded frames strengthen and minimize deflection under rated capacity, assure stamping accuracy . . . longer die life. And the exclusive Cleveland Clutch® minimizes down time—lowers maintenance costs.

Each of the 11 types of Cleveland Presses—standard yet special in every fine detail—is available in a wide range of sizes designed to give CLEVELAND users maximum press performance, safety and economy. Regardless of the job, we invite you to write or call for complete information to THE CLEVELAND PUNCH AND SHEAR WORKS COMPANY, East 40th and St. Clair Ave., Cleveland 14, Ohio.

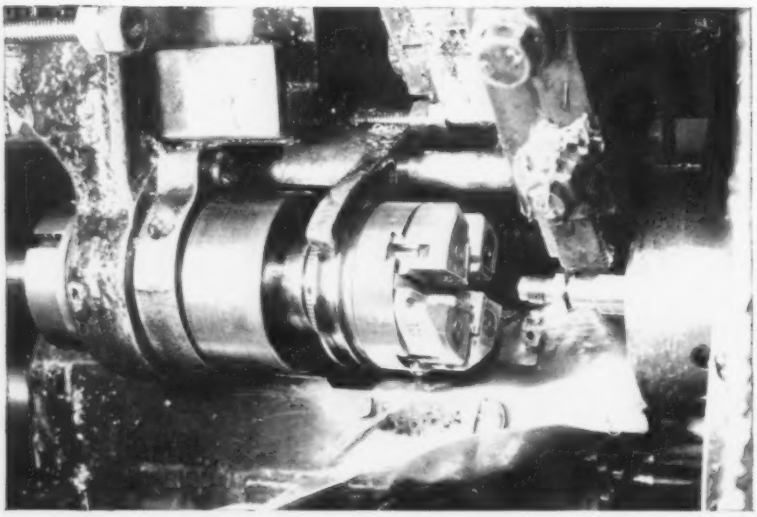
Offices at: New York • Chicago • Detroit • Philadelphia • East Lansing • Cincinnati

Power Presses
Fabricating Tools
Punching Tools & Dies

THE CLEVELAND PUNCH & SHEAR WORKS CO.
Established 1880



Economy Threading On Limited Clearance Automatics



To assure economy threading on automatic screw machines where limited die head clearance is a major factor Frank H. Wilson Co., Inc. in Detroit, Michigan use the ½" LL LANDEX Head. Applied to one of their small Acme-Gridley's for threading tubing nuts this head cuts ½", 20 pitch UN threads ⅜" in length on B1113 screw stock to a class three fit. An average of 20,000 pieces are threaded between chaser grinds.

Compactly designed with only a 2 7/16" swing the ½" LANDEX will thread all diameters from #4 to ½". A minimum number of working parts made of hardened and ground alloy steel, chaser holders designed to eliminate warpage and springing, and the use of precision LANDIS Tangent Chasers . . . all contribute to the high degree of rigidity and accuracy of this LANDEX Head.

Compare the chaser lengths in the illustrations and note the long life this LANDIS User has received from the chasers used in this application. These chasers will still produce thousands of threads as (1) LANDIS Tangential Chasers are usable for 80% of their original length; (2) only a few thousandths of metal need be removed from a chaser when regrinding; (3) when regrinding the same amount of metal need not be removed from each chaser; (4) long chaser life is received between grinds. These are the basis for economy in any threading operation.

For further information on this LANDEX Head and on other LANDIS Heads using Tangential Chasers and designed for all types of thread-cutting operations write for Bulletins F-80 and F-90. Please send specifications when writing.

LANDIS *Machine* COMPANY

396 WAYNESBORO • PENNSYLVANIA • U. S. A.

Highway building across the country
...is sped by an electric arc

All over the nation, you can see vast new roads being built. Rugged machines dig . . . scrape . . . haul . . . dump . . . to make your superhighway take shape.

Producing road-building machines involves special problems for their makers. Here, LINDE lends a hand. With UNIONARC welding equipment, heavy steel sections are joined with joint areas stronger than the steel itself.

Each of LINDE's different welding methods is designed for certain types of jobs. One is for joining metals that ordinarily are difficult to weld. Another gives sound seams in very thick steel. UNIONARC welding, a method recently developed by LINDE, permits welding downhand, vertically, or overhead—with savings up to 50%.

For half a century, LINDE has been engaged in research, development, and production of welding machines and methods, for both gas and electric operation. For information on UNIONARC, and a copy of the booklet, "Modern Methods of Joining Metals," write or call your nearest LINDE office.

LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y. *In Canada:* Linde Company, Division of Union Carbide Canada Limited.

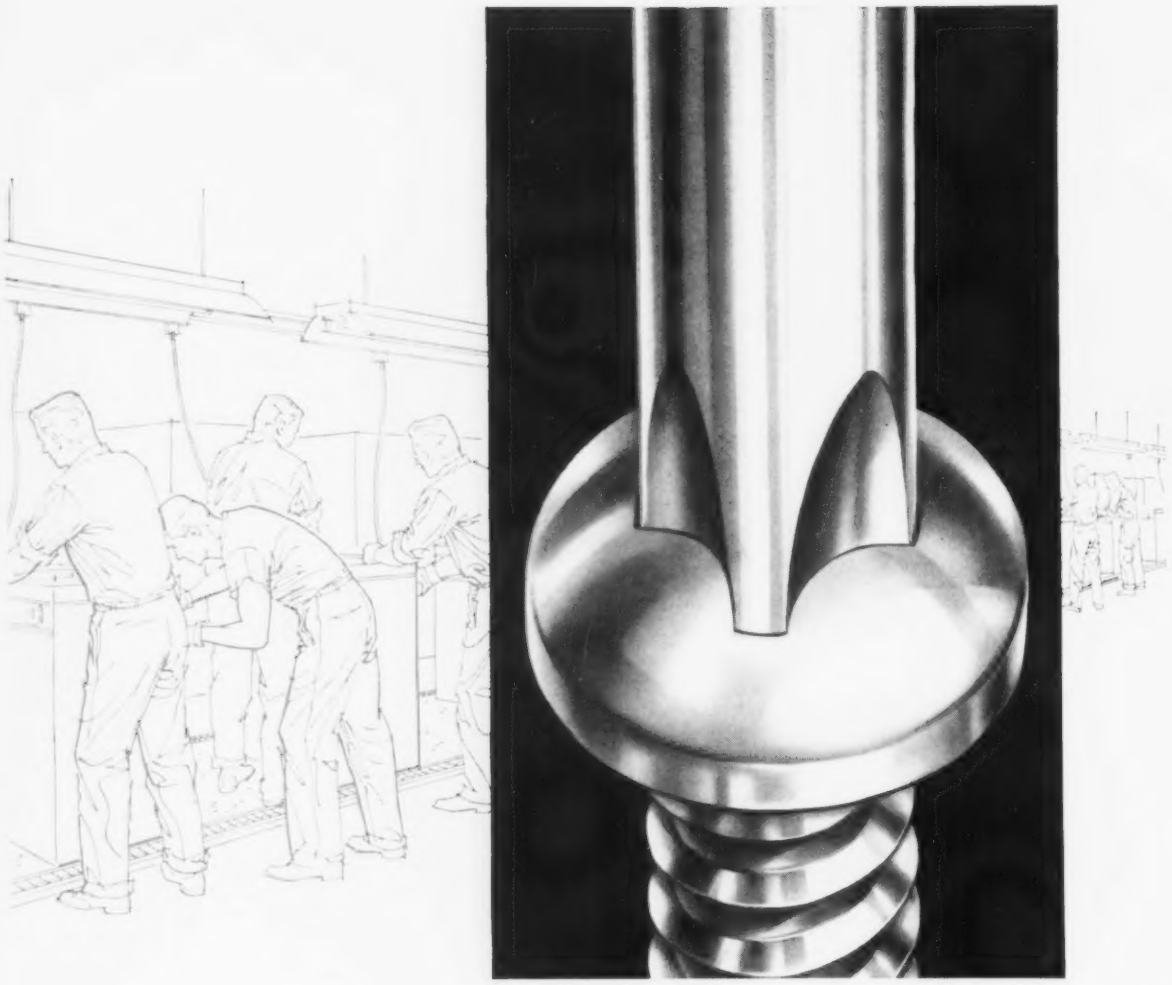
For the best in electric welding—look to LINDE!

The terms "LINDE," "UNIONARC," and "UNION CARBIDE" are trade-marks of Union Carbide Corporation.

Linde
TRADE-MARK

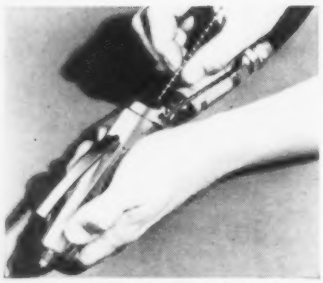
UNION CARBIDE

Electric arc welding methods developed by LINDE are used to help make tough and durable road-building machines for building the nation's highways.



THEY MAY SEEM THE SAME BUT...

AMERICAN is the name!



SCREWSTICK being loaded into air-powered driver.

Fastening costs in most instances are made up of 4 factors:

1. Price	**3. Quality**
2. Service	**4. Research**

Temporary price fluctuations, locally, may seem to be worthwhile in some cases, but no one gives you more of all four than American.

American Gives You More of All Four

In Service — American will meet any required delivery schedules wherever your location.

In Quality — where American standards spell perfection in the industry.

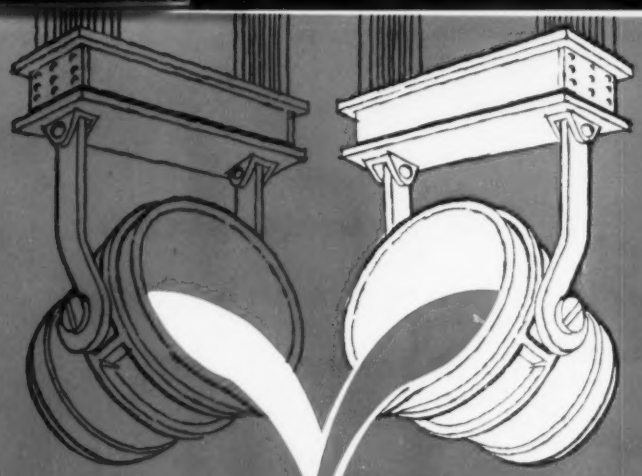
In Research — where the same energy and imagination that developed the famous Phillips Head Fastener goes into the creation of such unique products as SCREWSTICK for industries with individual fastening problems. SCREWSTICK replaces manual handling of small, hard-to-manage screws with power driving — resulting in cost savings exceeding 4 to 1.

Boost your production, cut your costs and increase quality with American. No one gives you more of all four factors: *price*, *service*, *quality* and *research* than American.

Send us your inquiry for price and delivery or your specifications for special fasteners. Write:

American!

AMERICAN SCREW CO., WILLIMANTIC, CONN.
NORRISTOWN, PA. • CHICAGO, ILL. • DETROIT, MICH.



For better service to you

Jessop acquires

Green River Steel Corporation

Green River Steel Corporation of Owensboro, Kentucky, one of the newest alloy steel plants in the country, now is a wholly-owned subsidiary of Jessop Steel Company. This fact will result in benefits to the customers of both companies. If you buy steel from Jessop, you have been buying the broadest variety of top quality alloy, high-speed and stainless steels obtainable anywhere. Now with the splendid new and modern melting facilities of Green River in the picture, service from Jessop will be broader and quicker. If you are a Green River customer, you'll enjoy higher quality and more products and the benefits of the exclusive Dornin Process used by Green River which provides steel of unmatched forging qualities and grain structure. If you haven't been buying from either company, this is a good time to start. Write to Jessop.

These Jessop district offices and representatives can now service you with Green River Products

District Offices
- Birmingham, Ala.
- Chicago, Ill.
- Cincinnati, Ohio
- Cleveland, Ohio
- Detroit, Mich.
- Hartford, Conn.
- Indianapolis, Ind.
- Los Angeles, Cal.
- New York, N.Y.
- Philadelphia, Pa.
- Pittsburgh, Pa.
- Toronto, Canada
- Wallaceburg, Canada
- Washington, D.C.

Representatives
- Charlotte, N.C.
- Kansas City, Mo.
- Milwaukee, Wis.
- St. Louis, Mo.
- Utica, N.Y.

JESSOP

STEEL COMPANY • WASHINGTON, PA.

OFFICES IN PRINCIPAL CITIES

Jessop Steel of Canada Limited, Wallaceburg, Toronto

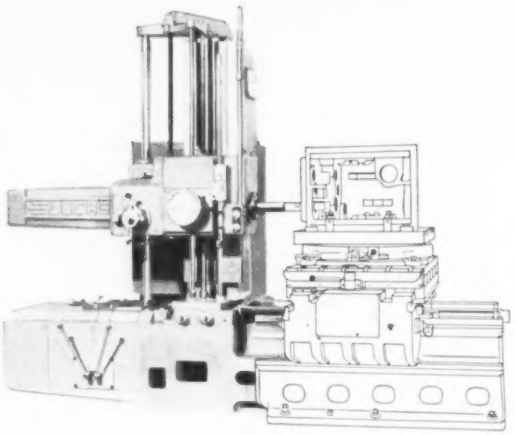
Jessop Steel International Corp., Chrysler Building, New York, New York

Select a Lucas

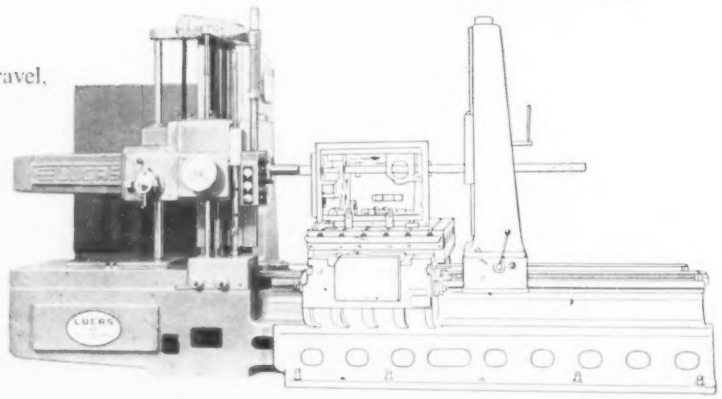
- **for accurate spacing**
- **for precision boring**
- **for heavy milling**

Your choice of controls—

STANDARD LEVER CONTROLS
available for use with both short bed or backrest models.



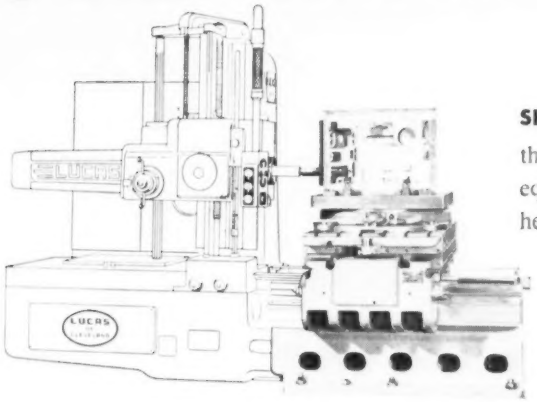
FULL PENDANT CONTROL
of feeds, speeds and directional travel, optional on any Lucas.



Whether you do line or stub boring, whether you prefer lever or automatic pendant control, you get the basic advantages of automatic power positioning and 4-way beds. Whichever model you select you get the benefit of continuing design improvement, backed by 57 years of specialization and leadership in this field *plus* the full resources of The New Britain Machine Company.

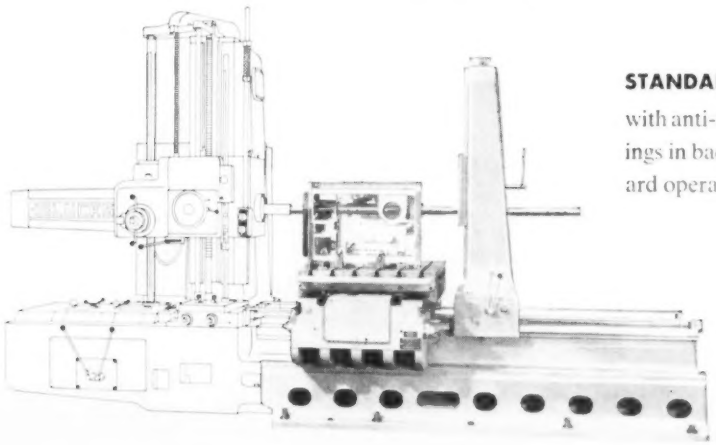
in production
in the tool room
in experimental work
in engineering research
in maintenance applications
or several, in combination

your choice of beds



SHORT BED MODELS

the most compact and economical equipment for precision stub boring, heavy milling and horizontal drilling.



STANDARD BED WITH BACKREST

with anti-friction bearing mounted bushings in backrest block, handles all standard operations including line boring.

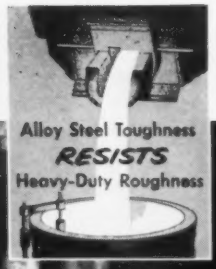
LUCAS OF CLEVELAND

LUCAS MACHINE DIVISION
The New Britain Machine Company
Cleveland, Ohio

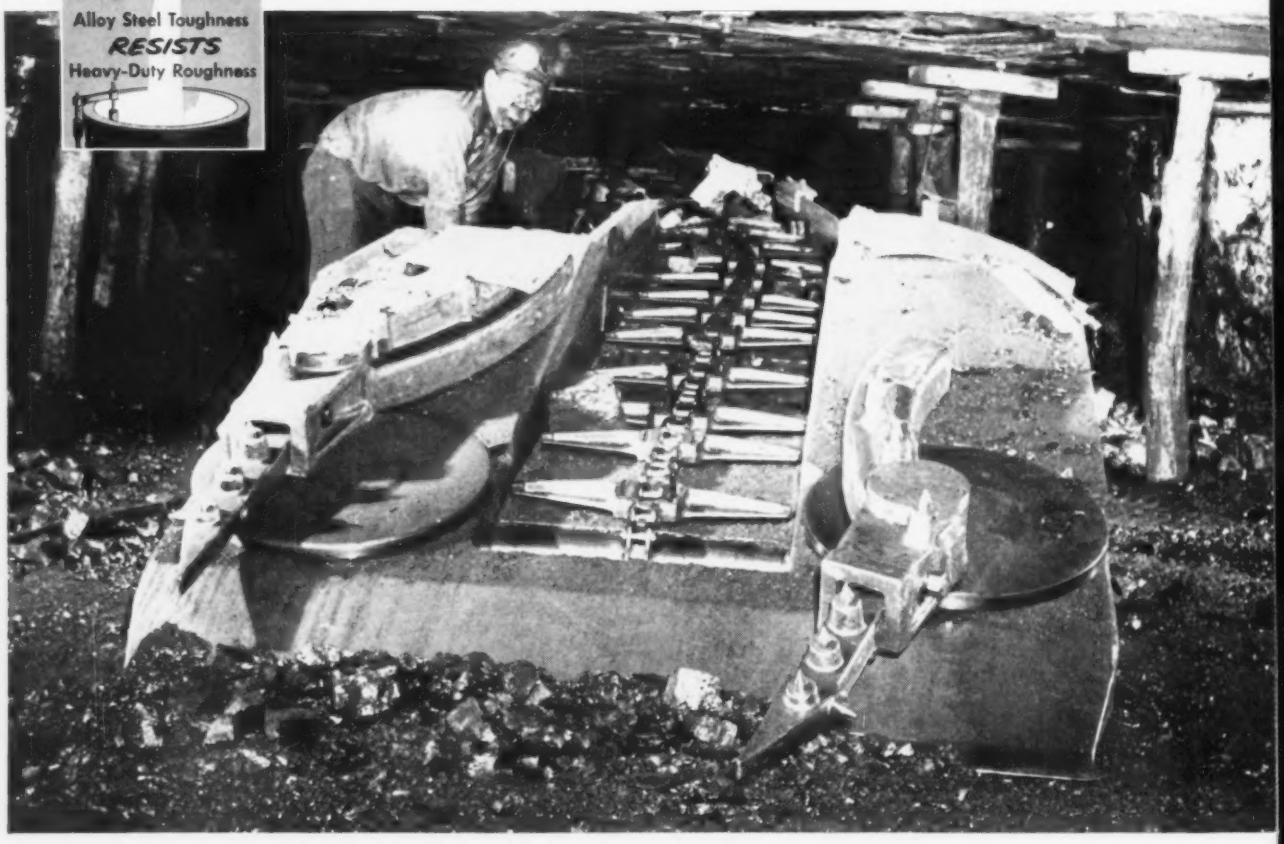
OTHER NEW BRITAIN MACHINE TOOLS DIVISIONS

New Britain-Gridley Machine Division
New Britain, Connecticut

Hoern & Dilts Division
Saginaw, Michigan



Republic Alloy Steel Provides



UNDERGROUND—Republic Alloy Steel's super toughness and strength help the 14-BU Loader perform with exceptional ease. This machine, made by Joy Manufacturing Company, Pittsburgh, Pa., helps to increase the per-shift tonnage possible from operations in low coal.

ON LAND—Republic Cold Finished Carbon Corrected Steel provides dependability for track pins used in the Oliver Corporation's "OC-18" Crawler Tractor. Years of service on other Oliver models have proved this material to be exceptionally resistant to fatigue failure, and able to absorb the shocks and wear of the most rugged service. Cold finishing improves ultimate strength, yield point, and hardness. Carbon correction saves money by restoring the surface the carbon lost in hot rolling and by eliminating need for the removal of this low carbon surface. Production economies are effected by taking advantage of the straightness, smooth surface, accurate size, and excellent machinability of Republic Cold Finished Steel. Mail the coupon for more information.

REPUBLIC

REPUBLIC STEEL

World's Widest Range of Standard Steels

Super Toughness at Critical Points in Modern Mining Equipment

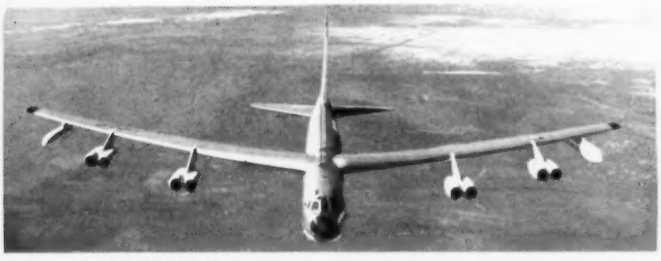
Today's modern mining equipment is capable of digging and moving tons of coal simply by flicking a switch or pulling a lever. Essential to the economical and dependable operation of these marvelous machines are Republic Alloy Steels.

These finest of steels provide equipment producers, such as Joy Manufacturing Company, with the high strength, toughness, shock-resistance and abrasion-resistance values needed to withstand the severe service to which the machines are subjected.

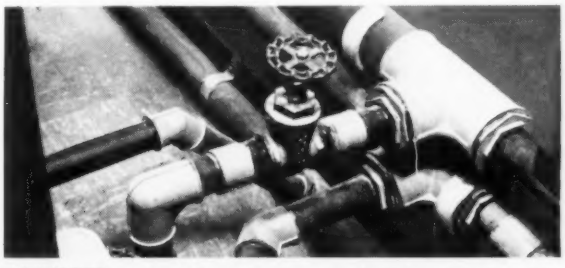
By using Republic 4340 and 4620 Alloy Steels for shafting in the 14-BU Loader, Joy engineers have reduced the possibility of mechanical breakdown to an absolute minimum. These fine steels offer superior toughness and strength to withstand torque, fatigue, shock, and stress. Alloy steel's uniform response to heat treatment gives these shafts hard surfaces around tough cores providing maximum resistance to abrasion, friction, and wear.

In Republic Alloy Steels you will find the highest strength values—plus an exceptionally high strength-to-weight ratio that permits the designing of thinner sections to save weight and hold down size without any sacrifice of needed strength.

Specify Republic Alloy Steels to insure safety, to extend equipment life, to cut maintenance and replacement costs. Specify Republic Alloy Steels where strength and toughness must resist heavy-duty roughness. Our metallurgists will help you apply these fine steels to your product efficiently and economically. The coupon is your invitation to their services.



IN THE AIR—Titanium saves 400 pounds gross weight in pod applications alone on the Boeing B-52. Bell Aircraft Corporation fabricates the jet engine pods for this history-making global bomber from titanium supplied by Republic and other producers. Titanium offers the highest strength-to-weight ratio of construction metals. It was selected for this application because of its lightness, strength, and corrosion-resistance. This resistance to corrosion makes Republic Titanium extremely attractive for processing-applications. It is immune to salt water and highly resistant to most acids. Send coupon for more facts.



IN WATER or chemical carrying lines, tough, lightweight Republic Plastic Pipe practically eliminates pipe replacement costs. Blaw-Knox solved a cooling tower re-piping problem by switching to Republic SRK after other pipe material failed in a year or initial costs proved too high. Use of Republic SRK provided substantial savings in material, installation and replacement costs. A similar job, installed three years ago, shows no sign of damage or wear. Republic SRK is easy to carry, easy to install, non-toxic, immune to sunlight. The coupon will bring you complete facts.

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION
Dept. C-3966
3104 EAST 45TH STREET • CLEVELAND 27, OHIO

☐ Have an Alloy Metallurgist call.
Send more information on: ☐ Cold Finished Steels
☐ Alloy Steels ☐ Titanium ☐ Plastic Pipe

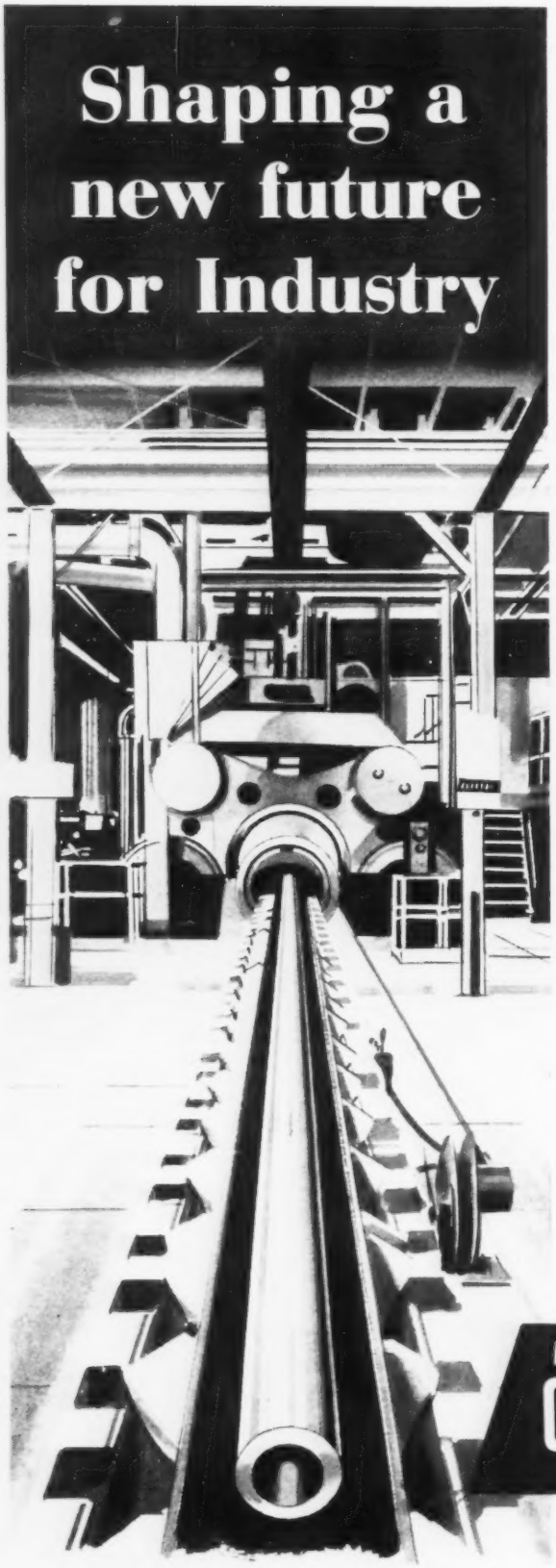
Name _____ Title _____

Company _____

Address _____

City _____ Zone ____ State _____

Shaping a new future for Industry



CURTISS-WRIGHT extrudes steels in shapes, lengths and sizes never before possible

Curtiss-Wright's Metals Processing Division is pushing steels into new uses for all industries. Shapes and sizes never before possible are being extruded in constantly increasing tonnages from alloy steels, stainless, titanium and other metals.

Starting with billets weighing up to 9000 pounds, the world's largest horizontal steel extrusion press moves the metal into shapes of virtually any profile that can be circumscribed by a 20-inch circle. Or, in a matter of seconds, the raw material may become heavy wall tubing up to 22 inches in diameter.

The 12,000 ton extrusion press and the complete facilities of Curtiss-Wright's Metals Processing Division are ready to go to work for you . . . to advance the design and production of metal products beyond the limitations of conventional equipment. Qualified engineering consultation available at all branch offices.

72 Grider Street

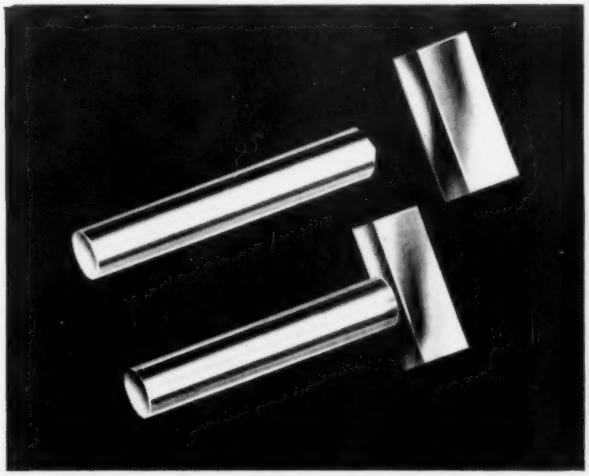
METALS PROCESSING DIVISION
CURTISS-WRIGHT
CORPORATION • BUFFALO, N. Y.

Metals Processing Division Branch Offices:
New York • Houston • Los Angeles

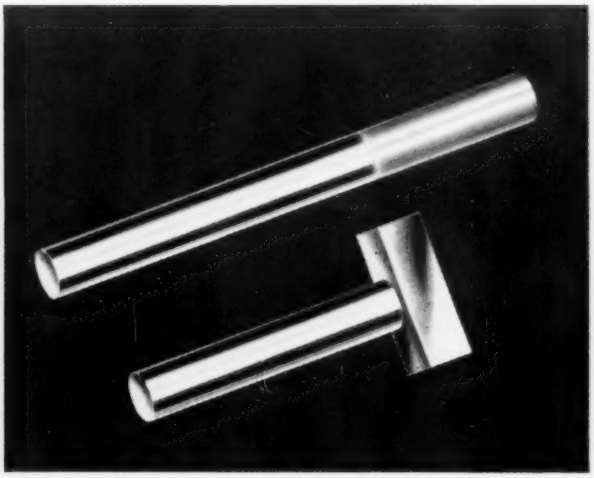
ELECTRONICS • NUCLEONICS • PLASTICS • METALLURGY • ULTRASONICS • AVIATION

G.R.S. Cuts Costs 65%

with TOCCO Induction Heating*



Old Method—headpieces and shanks were butt-welded after shanks were pointed and both parts sandblasted.



New Method—relay cores are formed from barstock heated by TOCCO Induction Heating. No sandblasting or welding is required.

● When General Railway Signal Company converted from butt-welding to TOCCO Induction Heating to form this relay core, they not only produced a better product, faster—but saved money doing it.

Faster Production—A 75 kw, 10,000 cycle TOCCO unit heats 4⅜" of this 9⅞" long, ¾" diameter silicon steel bar to 2100° F. for upsetting magnetic relay cores. 40 kw of high-frequency energy is used, producing 250 pieces per hour—nearly three times the production achieved by their former method.

Lower Cost—Formerly G.R.S. cut separate shanks and rectangular headpieces for this relay core. The shanks had to be pointed and both pieces sandblasted prior to butt-welding. Heating the blanks for forging with TOCCO saves nearly two-thirds the cost of this former method.

TOCCO is Flexible—The part shown is only one of nearly 300 that G.R.S. is heating for forging with TOCCO. Production runs vary from 15 to over 50,000 pieces.

It may pay *you* to investigate TOCCO as a sound method of improving product quality, increasing production and reducing costs.

THE OHIO CRANKSHAFT COMPANY

Mail Coupon Today—NEW FREE Bulletin

The Ohio Crankshaft Co. • Dept: A-7, Cleveland 5, Ohio

Please send copy of "Typical Results of TOCCO Induction Heating for Forming and Forging".

Name_____

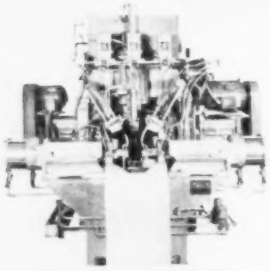
Position_____

Company_____

Address_____

City_____ Zone____ State_____

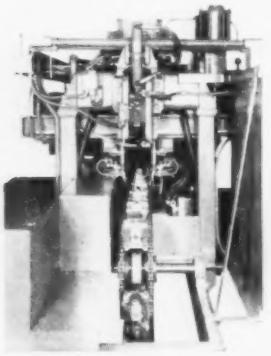
Entry end of line



Federal

PACKAGED PRODUCTION LINE

Automates Pedal Bracket Manufacture for Dodge!



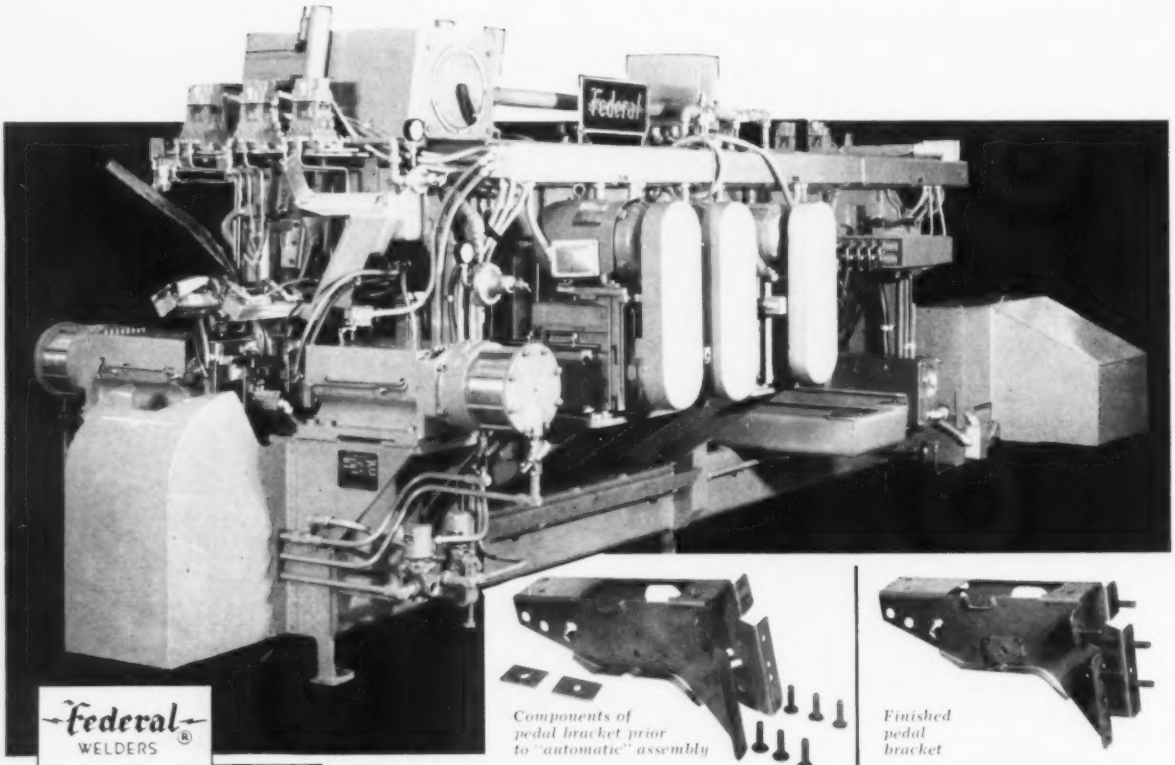
Exit end of line

SINGLE LINE AUTOMATICALLY FEEDS, SPOT FACES, REAMS, DE-BURRS, WELDS TO SPEED PRODUCTION, CONTROL UNIFORMITY OF PEDAL PART

The Dodge Division of the Chrysler Corporation recently set into operation a single Federal machine that performs manufacturing functions normally requiring many separate pieces of equipment. In the fabrication of automotive pedal brackets this Federal "Packaged Production Line" was made to feed and weld two pads to the bracket, spot face one pad, ream and de-burr holes in each pad, feed and weld six mounting bolts and eject the finished piece at a rate of 775 units per hour.

The combining of several manufacturing operations into one has many natural advantages. It means one source responsibility, reduced floor space, and handling requirements, equipment economies and greater product uniformity.

Don't overlook these benefits—talk with Federal—a pioneer in the development and manufacture of "Packaged Production Lines."



Components of pedal bracket prior to "automatic" assembly

Finished pedal bracket

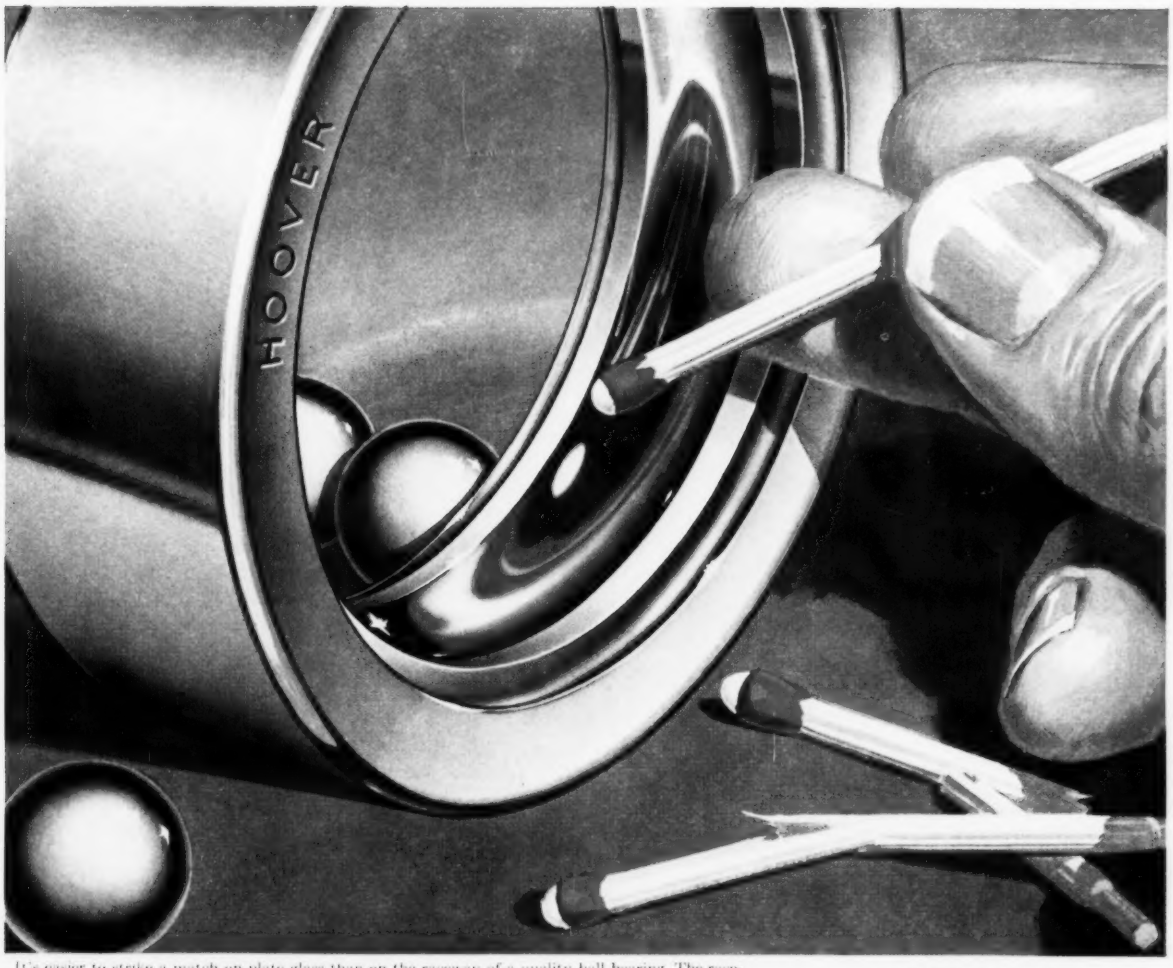
Federal WELDERS®

Warco PRESSES®

The Federal Machine and Welder Company

WARREN, OHIO

275



It's easier to strike a match on plate glass than on the raceway of a quality ball bearing. The raceway's smoothness makes it virtually impossible. Even so, not all bearing raceways are equally smooth.

Hoover Honed Raceways are super smooth . . . superbly finished

Bearing life—load capacity—quietness. These and other factors in ball bearing performance depend largely on the smoothness and finish of the bearing's raceway.

And that's where *Hoover Honed* Raceways pay off . . . in extra smoothness and finish. All makes of bearing raceways are ground. But Hoover Raceways are also *fully honed*. Hoover Honing, a patented process developed by Hoover, is the last word in precision finishing for raceways.

Coupled with *Hoover Honed* Raceways are matched sets of Hoover *Micro-Velvet* Lapped Balls, made to unusually high standards of smoothness and roundness. Precision throughout the working surfaces achieves superior ball bearing quality . . . assures long life and unexcelled performance.

Investigate Hoover's line of ball bearings in the light, medium and heavy series, available in a variety of types. Hoover engineers are ready to assist manufacturers with engineering and design information. Write Hoover about your problem.

hoover

BALL AND BEARING COMPANY, ANN ARBOR, MICHIGAN

Hoover Honed and *Micro-Velvet* are Hoover Trademarks.

HOOVER HINTS:

Common Causes Of Bearing Failure

What makes an anti-friction bearing stop doing its assigned job? Improper lubrication, foreign bodies, soft balls or raceways, poor race concentricity, high operating temperatures and incorrect bearing selection—all are possible causes for premature bearing failure.

Common causes of bearing failure is but one of the many problems confronting users of anti-friction bearings—this problem as well as others pertaining to bearings are given concise coverage in the Hoover Handi-Book of Anti-Friction Bearings. Write for your copy today . . . it's written to help you select the right bearing for any application.

Hoover Ball and Bearing Company,
Ann Arbor, Michigan.

Mail my copy of "Hoover Handi-Book of Anti-Friction Bearings."

Name_____

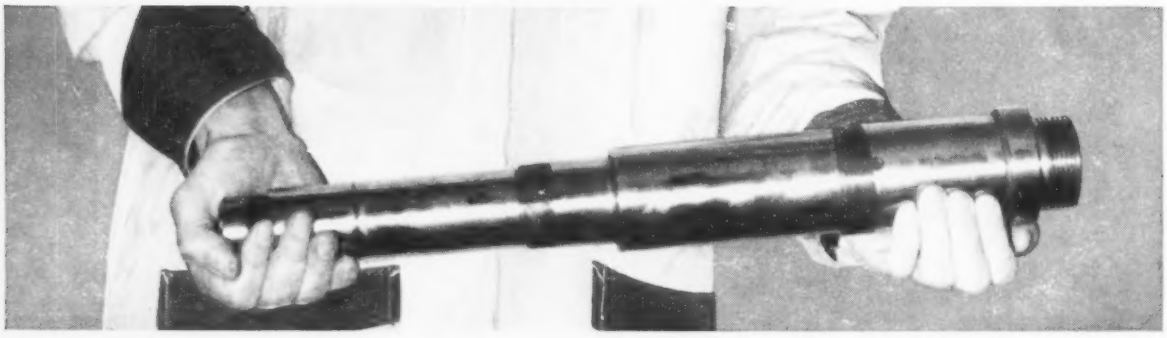
Title_____

Company_____

Address_____

City_____ State_____

Machining Costs Cut 25%
by switch to NEW RYCUT 50

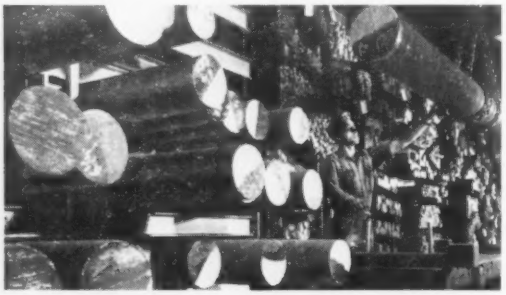


Logan Engineering Co. report shows how you can save up to 30% with a Ryerson leaded alloy

THE PROBLEM—This Chicago manufacturer of precision lathes faced a tough production problem from a time and cost standpoint. Lathe spindles have to be tough and hard with high wear resistance—so the steel Logan originally used was SAE 52100.

Put the spindles were turned down and center drilled from the solid to hole sizes as large as 1⅜". And ID's had to be accurate and free from scoring along the entire length of the spindles. 52100 provided the required mechanical properties but was slow cutting and created production difficulties and a high scrap rate.

Needed: A *free-machining* steel that would develop the high hardness levels, the toughness and wear strength required for the application.



THESE LARGE ALLOY STOCKS . . . also carbon and stainless steels in every shape and size, are in stock at Ryerson. Also call Ryerson for reinforcing steel service, industrial plastics, machinery and tools, etc.

THE SOLUTION—Logan engineers had long been on the lookout for a steel that would solve their production problems so they were eager to try New Rycut 50 when this Ryerson 50-carbon alloy steel with a controlled lead addition was suggested by Ryerson metallurgists.

New Rycut 50 was a success from the start! Now, after two years, Harry Peterson, Logan plant superintendent, reports: "New Rycut 50 has saved us a consistent 25% of our former costs in the production of lathe spindles. Rycut's uniform machining and hardening properties have reduced scrapped parts to a minimum and the steel has proved satisfactory in every way."

This is just one of many case histories in our files on the steels in the Rycut series—New Rycut 50, Rycut 40 and Rycut 20. Actual performance records show machinability increased as much as 50%, . . . tool life lengthened as much as 300%, when a Rycut steel is used in place of a standard alloy of comparable mechanical properties.

To get further information on these great new cost-cutting steels or for quick shipment of any steel requirement, call or write your nearby Ryerson plant.

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

No-Rust Chrome Plating

Researchers hope to stop rusting of chrome plated steel parts with a practical way of putting a zinc base under copper-nickel-chrome deposits. Lab tests look good; field tests are now underway. This method apparently licks the old problem of a molecular blending between the zinc and copper layers, which creates a gap between the steel surface and the plated layers.

New Mills In Pittsburgh?

Look for new steel mill construction in the Pittsburgh area if proposed Pa. state tax changes go through. A bill up for signature by Gov. Leader would eliminate local taxes on new machinery as real estate. Existing equipment would not be affected, but levies on this category decline with depreciation anyway.

Stop Aging In Mild Steel

Count on the full-scale production of non-aging, mild steel sheet within the next few years. For deep-drawing sheet, this is a step toward eliminating all roller leveling. To produce the non-aging grades, it's now fairly certain that steelmakers will prefer low-cost boron additions. Most of the research is completed and successful production-test heats have been made.

Whistle Smog Away

Ultrasonics looks promising as a means of air pollution control and fog dispersion. Work is being done with multi-whistled sirens similar to the well-known dog whistles that are inaudible to humans. Soot particles can be made to vibrate at ultrasonic frequencies, causing them to bump together; agglomerate and fall to the ground. Putting such a device into an industrial chimney would allow only clean, smog-free fume to be discharged into the atmosphere.

Chromite Reserves Grow

Geological surveys estimate U. S. reserves of chromite ore at about 3.5 million long tons. In 1945, the reserve supply was estimated at only 2 million long tons. Despite the indicated gain, the chromium situation is still tight. Much of the ore is low grade and can neither be mined profitably at current prices nor beneficiated to meet metallurgical chromite specifications. At present rates of consumption, total reserves are only a 5 to 7-year supply.

Labor Slows Housecleaning

Labor's drive to clean its own house has run out of gas, at least temporarily. With Senate hearings suspended for a time, once-shouted plans for rooting out corruption are fading to a whisper. Apparently halted are promised clean-ups in AFL-CIO Teamsters, Bakers and Carpenters unions.

Solder Aluminum For Less

A special flux and a 95 pct zinc-5 pct aluminum solder will join all aluminum alloys and also join aluminum to such metals as copper, brass, steel and nickel. The solder melts at 715 to 725°F. Thus it permits making high temperature joints that formerly had to be welded or brazed.

A Little Takes A Lot

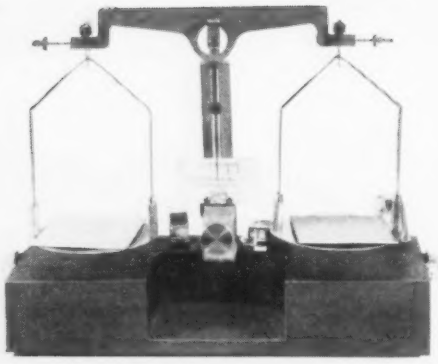
The Air Force finds that by shrinking its electronic gear to miniature size, it needs more technicians to maintain and repair equipment. The days of one-man plane maintenance are over. Now, highly-trained specialists are assigned to only one part of a plane.

Skip A Step In Bonding

Bonding aluminum-tin alloys to steel backing plates can be done without first aluminizing the steel. Rolling the alloy to match the hardness of the steel makes the alloy and the backing plate deform equally during bonding. The technique works at temperatures under 390°F. Annealing at 660°F produces a stronger bond.

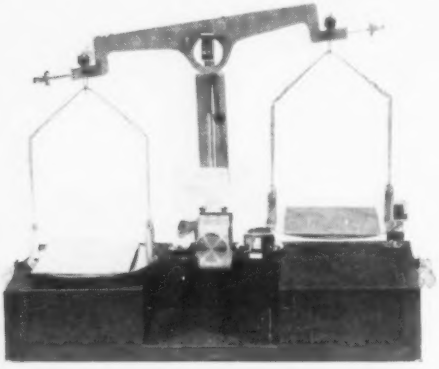
Cut Overtime For Defense

Overtime pay on defense contracts will get scarcer. The Pentagon plans a review of contracts allowing overtime work. Reduction will be made where possible, and resulting savings will be targets for government recapture. Overtime pay will be permitted when (1) it's needed to meet delivery schedules, (2) the final result will be lower cost to the government.



NO WEIGHT DIFFERENCE. Two identical panels of low-carbon sheet steel were used. They balanced the scale.

RODINE MINIMIZES ACID ATTACK. Each panel was placed in a beaker containing 10% by volume of 66° Bé sulfuric acid at 160 F. The acid in the right-hand beaker was uninhibited. The acid in the left-hand beaker was inhibited with Rodine 82, ¼% by volume of the concentrated acid. There was little or no hydrogen evolution in this beaker . . . Rodine retarded the attack of the acid on the base metal.



RODINE SAVES METAL. Both panels were removed from the acid pickle solutions after 5 minutes. The one pickled in the uninhibited acid had lost 1.4% of its original weight. The one pickled in the Rodine-inhibited acid had lost only 0.001%. This represents a saving of 26 lb. of steel for each ton pickled; and a simultaneous saving of nearly 50 lb. of 66° Bé sulfuric acid when Rodine is used to inhibit the acid.

ACP Rodine®

SAVES ACID, SAVES METAL— GIVES YOU MORE STEEL TO SELL

With ACP Rodine as the pickling acid inhibitor, you use less acid and have more steel to sell. Up to 50 lb. of acid is saved per ton of steel pickled and up to 26 lb. of steel. Fuming is practically eliminated. Formation of blisters and embrittlement is minimized. Costs of charging and cleaning of pickle baths are reduced—baths can be operated longer, and less acid is required to keep them at desired concentration. There are fewer rejects—steel pickled in acid inhibited with Rodine has uniformly clean, bright surfaces, free of pits, blisters and smut.

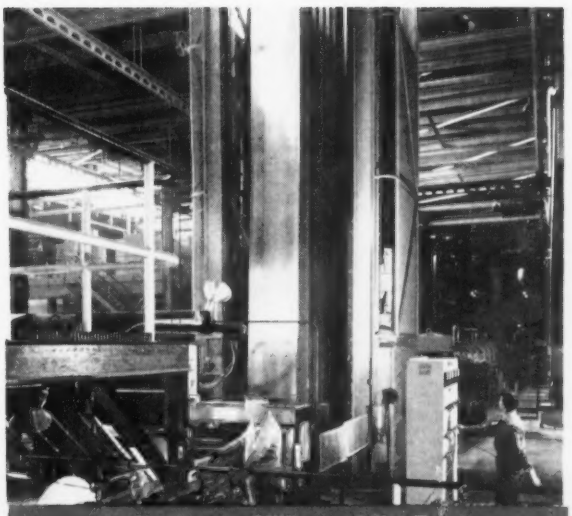
LEARN MORE ABOUT ACP RODINE. Bulletin 1381 tells the complete story. Write for your copy today.

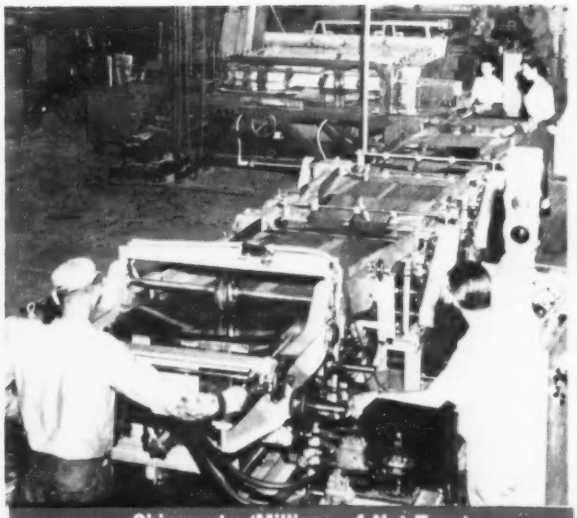
AMERICAN CHEMICAL PAINT COMPANY, Ambler 20, Pa.

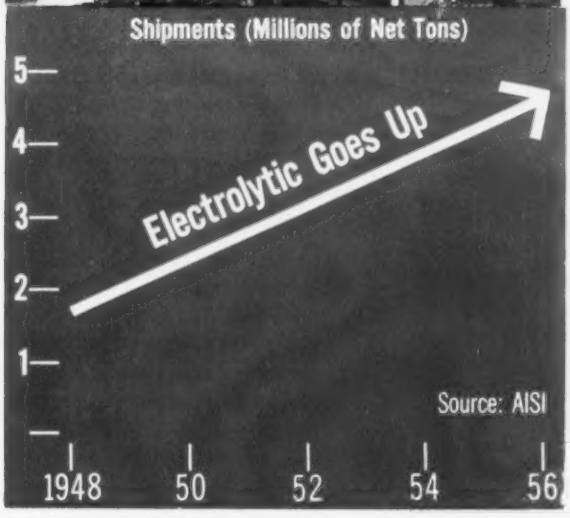
DETROIT, MICH. • ST. JOSEPH, MO. • NILES, CALIF. • WINDSOR, ONT.

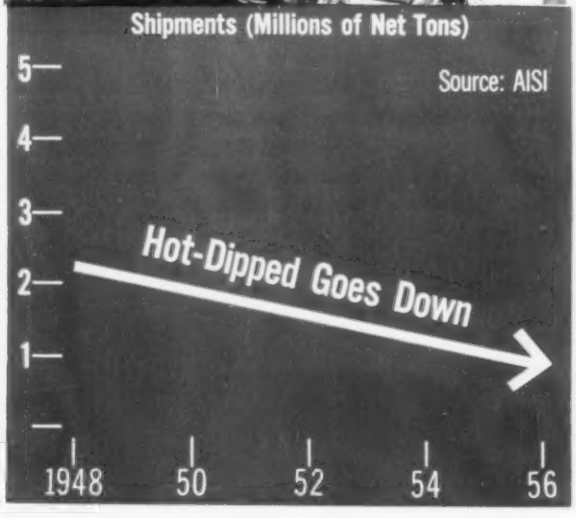
CHEMICALS ACP PROCESSES

New Chemical Horizons for Industry and Agriculture









Mills Expand Capacity To Fill Growing Tinplate Needs

Electrolytic Capacity Will Rise Million Tons

Producers figure market will absorb new capacity.

Competitive materials recognized as threat; but inroads so far are negligible.

User trend to coils may relieve mills of cutting line bottleneck.—By G. J. McManus.

▪ Tinplate producers are plunging again. Their latest rash of expansion projects lines up like this:

U. S. Steel: One electrolytic line now shaking down at Gary; another due for completion next June at Columbia-Geneva Div.

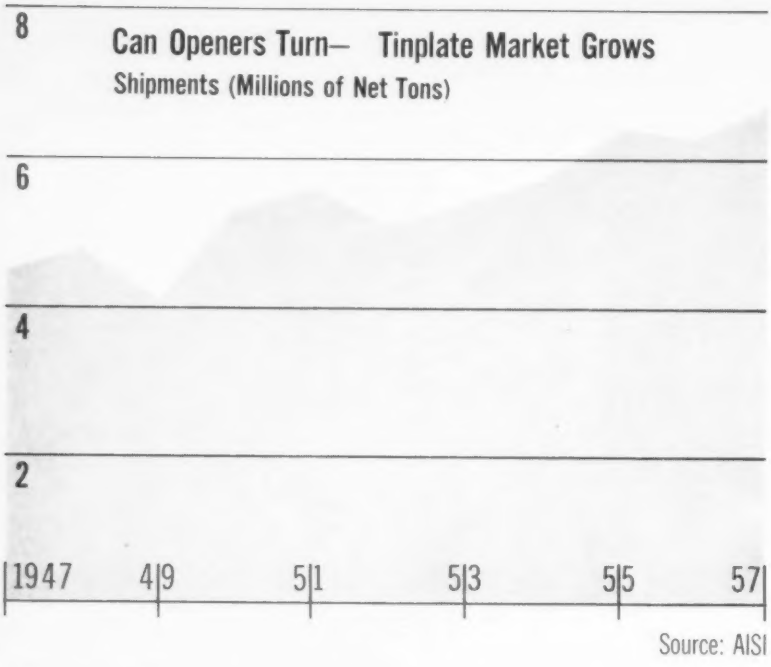
Bethlehem Steel: One electrolytic line completed in February; another due in the fourth quarter.

Youngstown Sheet & Tube: A new line now operating at Indiana Harbor.

Weirton Steel: New line completed last June.

Kaiser Steel: New line planned; will probably be ready by early 1959.

Capacity Gain—In addition the



Source: AISI

mills are steadily souping up existing tinplate facilities. A revamping program will give Wheeling Steel added electrolytic capacity at its Yorkville mill by early next year. Jones & Laughlin has built 20,000 more tons into tinplate facilities since 1954. Others have made similar gains.

In all, the current push will add about one million tons of electrolytic capacity. This looks like a big bite for the market to digest in a period of two years. Tinplate capacity on the last official count was 7.3 million tons; shipments in 1957 will probably run a little over last year's 6.3 million tons.

Hot Dip Declines—However, the figures on existing facilities include nearly 1.8 million tons of hot dipped capacity. A part of this is slated for the boneyard and some may have already been retired. Over the past eight years, shipments of hot dipped tinplate have been dropping at the rate of about 150,000 tons annually. One tinplate man feels the swing away from hot dipped has been completed, that users have made the change where they could. Peas, spinach and other "detinners" are still packed in hot dipped tinplate; the market may be nearing the floor provided by these required applications. At the moment it looks as though shipments will fall another 100,000 tons this year.

Electrolytic Grows—To replace hot dipped facilities and to keep up with market growth, tinplate producers have more than tripled electrolytic capacity in the past 10 years. Shipments of electrolytic plate jumped by 3 million tons from 1947 to 1957. When the present expansion is completed, electrolytic capacity will be something over 6 million tons or 1.5 million more than in 1954.

Producers don't figure this will be too much.

"We're working 19 and 20 turns a week," says one. "We need time off for maintenance. We'd welcome a little slack."

Inventories High—Right now, the mills are loaded with inventory. Shipments jumped to over 870,000 tons in April, just before the price increase. During the first four months of the year, they averaged more than 700,000 tons a month. In May they dropped to 350,000. June was a little better but was still slow.

During this two-month lag, the mill continued to operate electrolytic lines at capacity and to build inventory. "I was surprised how high our stocks were at the end of June," said a tinplate man.

Crop Outlook — However, he pointed out that the plate is on order. He expects to be cleaned out by the end of the summer canning season. The absence of a strike threat and the unusually heavy price buying this year have pushed back shipments a little but producers feel this is just a question of timing, not of volume.

On questions of weather and crop acreage, tinplate men are philosophical. It would not be surprising if this year's crop fell short of the record yield in 1956. Crop acreage is off 4 pct. The Northwestern fruit country has been hit by damaging rains. If there is a dip, it will probably be offset next year. The general tinplate trend is steadily upward. Shipments increased in 1954, when other steel products were lagging. Last year, they were up by nearly 2 million tons over 1947.

Competitive Materials—Tinplate men are mindful of threats from other materials in the can markets. However, they feel the inroads so far have been negligible. And they point out that tinplate is finding steady use outside containers.

Automotive use of tinplate increased from 5000 tons in 1949 to 32,000 tons in 1956. Valve covers and other auto parts take tinplate. Appliance, machinery, and other applications have shown increases.

Equipment Trend — In production, the tinplate trend is toward bigger, faster equipment. It takes about two years to build and put in operation a modern electrolytic line. It takes six months to get a completed line in full production.

Output will vary widely with different installations. Weirton's new line operates at 2000 fpm, can turn out over 300,000 tons a year. One producer rates his line at 12,000 tons a month; another is talking 20,000 tons a month. Average is somewhere around 15,000 tons.

Swing To Coils — In line with plans of can makers, the mills are equipping their lines to supply tinplate in coils.

Price Probers Draw Bead on Steel

But Civil Rights Hassle Delays All-out Attack

Kefauver's assault on "administered" prices is aimed largely at steel industry.

But key witness testifies wages as well as prices must be probed to get at root of problem.

■ Senate monopoly probers have loaded their guns for an all-out attack on the steel industry. It will get underway shortly after the Senate winds up the civil rights controversy.

Best guess is that the original late July date for the steel inquiry will be slipped back into August. But when it comes, members of the Senate antitrust subcommittee headed by the still politically-ambitious Sen. Estes Kefauver, D., Tenn., will be ready to drop some publicity blockbusters, although many will be economic duds.

What's Administered Price? — Technically, the subject of the hearings is so-called administered price industries. Principal effort will be to dig into the steel industry's pricing practices. But the probe will range far and wide, and delve into concentration in the industry and provide a new springboard for attacks on the recent steel price hike.

Edwin G. Nourse, chairman of the Council of Economic Advisers during the Truman administration, testified last week that the recent average steel price boost of $6 per ton "does not seem to me to have economic justification." At the same time he gave steel men credit for minimizing the amount of the increase.

But labor also came in for a few thrusts from Mr. Nourse. He told the committee that wages as well as prices must be investigated if an equitable answer to the problem is to be arrived at.

"It is my belief," he said, "that the processes of price-making and wage-making are so intertwined in the modern world that neither can be effectively analyzed in isolation from the other. I believe also that the phenomenon known as monopolistic competition or as administered pricing manifests itself in essentially similar ways and with essentially similar consequences in the two cases."

Difference of Opinion — One problem the subcommittee will face in trying to find a chink in the industry's armor is this: Most of the complaints over the recent price increase from smaller steel firms are that it isn't large enough to cover their increased costs.

A lot of the ammunition for the steel probe—and for subsequent inquiries into autos, food, and similar industries—will come from a recent report on concentration of industry. It was prepared with statistics gathered by the U. S. Census Bureau.

Humphrey To Be Called — The subcommittee will use the figures to show a heavy percentage of steel shipments are concentrated in the largest steel companies.

It's an almost solid bet that embattled George Humphrey, outgoing Treasury Secretary, who has spent some three weeks under grueling questioning of the Senate Finance Committee, will be asked to come before the steel hearings.

EDWIN G. NOURSE: He challenges steel price hike's economic justification, but gives credit for minimizing amount of the increase.

What To Do When The Tax Man

Take it easy. He isn't your friend, but he isn't your enemy either.

Don't talk too much. Just answer the questions. It won't take long if everything is in order.—By Tom Campbell.

▪ Ever have that clammy feeling that the Internal Revenue man may call on you? You read about it but you maybe think, "no, not me." Then when the word comes that the Revenuers are making a "drive" do the goose pimples come out?

Well relax. The chances are good that you may some day get a summons from the Internal Revenue Service saying they want to make a "verification" of your return for this or that year—or years.

You're the Taxpayer — Even though you have a good tax man to make out your returns it is still true that you are the taxpayer. You may have to answer some of the questions, worry a little and wonder just how one should greet the government's tax salesman.

There have been a lot of articles about what to pay, how to pay it, what forms to use and what records to keep. But there aren't many treatises on how to act when the I-R man rings your bell. This is that kind of a piece.

AUTHENTIC NOTE

The reactions and observations reported here by editor-in-chief Tom Campbell are not fictional. They were obtained while Agent Robert S. Weinreb of New Rochelle, N. Y., was "verifying"—checking, auditing, investigating or examining—the editor's tax return. They are not necessarily the views of Agent Weinreb—or of Russell Harrington, Internal Revenue, Commissioner.

—The Editors

How To Act—Remember this: When an agent of Internal Revenue calls on you to "verify" — polite language for investigate, check, look into, examine or audit — your tax return, he knows what he is looking for and why he is there.

Let's get to etiquette first. Just how should you greet your government man? Should you slap him on the back? Shake hands with him? Offer him a cigar or a drink? Should you pass the time of day? Talk about the weather or his children or your children?

Don't Overdo It—For your information, there is a general order somewhere that says agents are not to indulge in or be indulged in hospitality. That doesn't mean you should give the agent the same look as you used to give the dog catcher. Just act natural. If you are a genial and hearty person, be that way. But it isn't necessary to overdo it. After all he has a job to do. This is no picnic for either of you.

If you are a stinker you can be a stinker. Although if you try hard not to be one on this day of examination it may be more pleasant—for both. There are some fine points of income tax filing that are matters of judgment and interpretation and not necessarily of law.

Have Your Records—Of course we are assuming that your tax return is in order and that there is nothing to hide. That is well. Because if you get a notice that your return is to be verified you had better get all the records handy. That means check books, bank books, bills — in fact, everything that is used to make up your tax return.

If you are "called" you may get the examination at your office, at your home or at the Internal Revenue office. The visit conforms to what is best for you. It is better to have the checking done where your files and records are kept. That way you can get it over with quickly and not have to go on a safari to look for something you ought to have brought with you.

About Tax Forms — Your own tax man knows or should know how to fill out your forms. You should know something about it. If there is any question of law or of judgment or any matter which needs more explanation, your tax consultant may have to ask you. He can't know everything about your business.

But there are enough books around to tell you how to fill out your income tax forms. The cost of having a tax expert do it is not great. Furthermore, your government has two books for 25¢ each. One tells the ordinary taxpayer what he should or should not do. The other book is a tax manual for small business. The J. K. Lasser booklets do a bang-up job of telling you all about tax filing.

About Tax Men — The Revenue man who may call on you is not an ordinary fellow in the sense that maybe he does and maybe he doesn't know what he is doing. He is trained to do the job assigned to him. He knows the law backward and forward. He is trained to observe people—and he knows what he is looking for.

Before he got his job he took a psychological test to determine if he were full of what are professionally known as hostilities. If there was any doubt at all that he would go after the Internal Revenue's customers like a bull in a china shop, he wouldn't have gotten the job. But more than that: He has to go through a severe set of interviews even after he passes the psychological test. Then about one out of three is accepted.

Be Discreet—Probably the best thing to do when the agent is going over your records is to answer only when questioned. If you have

Calls on You

a tax consultant, let him do all the talking unless you are asked a direct question. Don't chime in on your consultant's conversation with the agent.

If you filled out your own forms, the same thing applies: Comply with the requests which are made. You are innocent until proved guilty. It may be that you, like millions of others, made a mistake, misinterpreted a tax law that baffles judges or just plain forgot a few things. Your Revenue visitor is not looking for fraud. He is merely checking your return in accordance with the law of the land —and on orders from his boss.

Also, if you are not satisfied you may appeal. The law provides several avenues through which agents' recommendations may be challenged. You may go to the Revenue's Regional Appellate office. If that doesn't satisfy you, you may appeal to the tax court.

You Could Benefit—The agent who is trained in accountancy and in investigation work is not going to assess you any more than the government is entitled to. If your records are not in good shape that is another matter — and more involved. A recent court decision indicated that a man who had paid cash and who had a daily record of what and why he paid was "on the beam." His records were considered to be okay no matter what the Internal Revenue had said.

If an agent sees that you have over-paid, he will point this out. There are many cases where an Internal Revenue agent recommended a refund based on examining the taxpayer's return.

Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., THE IRON AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

Internal Revenue Service: Rumor vs. Fact

RUMOR	FACT
When the Internal Revenue Service asks for a "verification" —audit—of your tax return one year, you are "in" for it each year thereafter.	**The fact that you are audited on your income tax for one year is no indication that you will or will not be "picked" another year.**
Agents of the IRS are looking for fraud when they call. You don't have a chance.	**They are not looking for fraud. They are verifying or auditing the figures you gave.**
Revenuers have a chip on their shoulder. They are trying to trip you up. They are jealous of your income. They are full of hostilities and want revenge.	**This, IRS men think, is the unkindest cut of all. Agents go through a strict psychological test; one of three who pass gets a job.**
Agents must charge you with something. If they don't, they will come back empty-handed; their bosses don't want this.	**There is nothing in or out of the rule book that says an agent must bring in extra tax. He may recommend a refund.**
Agents are graded on how many taxpayers they "catch" and on how much extra tax they collect. Promotions go to those with the biggest "collections."	**There are no such gradings or promotions. Agents don't collect tax. They refigure if more tax is due. You have several recourses before the final order is issued.**
Agents are surly, arbitrary. You can't tell them a thing. They won't listen to your explanations. What they think goes.	**This is not true. They can't be surly and hold their jobs. They are required to listen to and weigh your explanations.**
The Revenue man is your enemy. He is a snooper who is looking into your private affairs. In other words, he enjoys seeing you writhe.	**He is just another guy doing his job the best he can. If you writhe, it is because of something you have done; not something he is doing.**

Appliance Makers Cut Back Too Far for Comfort

Fear of overproduction caused appliance makers to reduce production rates late in 1956.

Now, low retail and manufacturer inventories mean action in second half.—By K. W. Bennett.

■ Is the appliance industry backing into an overslash in raw materials inventories? The signs are beginning to appear.

Without exception, appliance producers have reduced raw materials and components inventories through first half. Even the prospect of the steel price hike failed to boost buying. Raw materials intake slumped below manufacturing levels. Manufacturing levels have fallen below retail sales levels.

Spurred by reports of "heavy finished goods inventories at the manufacturing level," competitors cut output further and are rigged for the most stiffly competitive second-half in five years of increasingly competitive second-half sales campaigns.

The Background—As early as 1956, RCA-Whirlpool announced that $20 million was budgeted for major appliance promotion. Other manufacturers seized the gauntlet, opened 1957 with whirlwind promotions. They revamped sales staffs, stepped up new model introductions.

Dealer publications bristled with gatefold ads and insertions. When the market fell flat, buried in what appeared to be a surplus of 1956 models at the retail level, manufacturers reversed course. They pared production schedules to the bone.

Washer production has fallen from 331,300 units in January to 254,000 units in May, most recent reporting month. The dryer cut is even more spectacular. Production dropped from 144,600 units in January to 31,500 in May. These two lines, along with dish-washers, account for about one-third of major appliance unit sales.

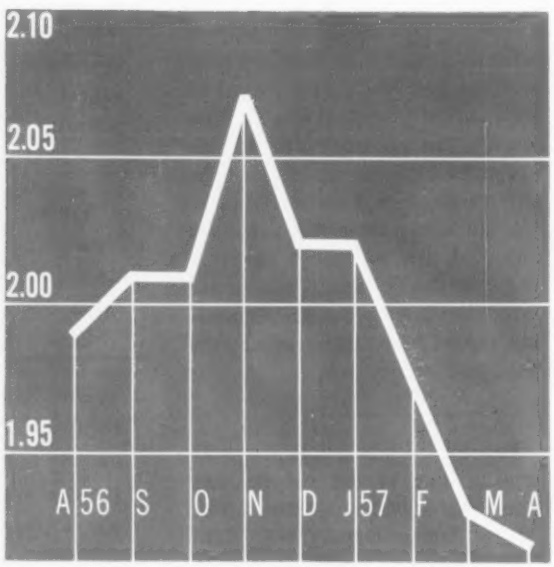
Hope for Second Half—At the moment, trade sources believe 1957 total unit sales of air conditioners (room), ranges, vacuum cleaners, refrigerators, dryers, washers, and dish washers, will fall 5-10 pct below the 16,291,000 units shipped from factory in 1956. Last year was a record, exceeding 1955's 15,154,000 units by about 8 pct.

Despite the gloom in some field sales offices, there is a strong case for a banner second half. First:

Of the seven appliances listed above, four have a second-half sales peak. Two more, ranges and

Retail Stocks Are Way Down

Inventories: Furniture and Appliance Stores
(In Billions of Dollars)



Source: Dept. of Commerce

refrigerators, are almost uniform in sales levels through the year, though refrigerators show a mild July-August upswing, ranges in fourth quarter. Past history is on the optimist's side. Historically, second half should be better.

Inventories Are Down—Second: the "staggering inventories" aren't borne out by industry statistics. Production has fallen faster and further than retail sales. At the moment, refrigerators are comparatively in better sales shape than a year ago.

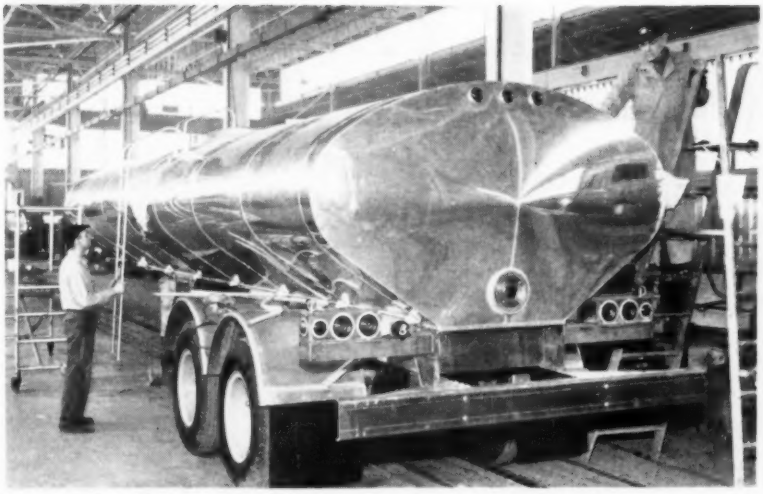
At that time refrigerators were 11 pct off the preceding year; only 4 pct off now, according to Judson Sayre of Norge Div. of Borg-Warner. Ranges are running the same percentage of loss.

Laundry Looks Good — Home laundry will have trouble recovering second quarter production losses. With new models just introduced this month, with many producers scheduling a July or August vacation shutdown, with the selling season still ahead, there could be a real scramble to get inventory totals up to inventory levels justified by the current sales outlook.

Third, some of the signs are already here. With the refrigerator manufacturing season officially past, one manufacturer has ordered a July production stepup. Hotpoint has indicated it will produce at levels originally forecast for third and fourth quarters of this year.

These were predicated on a substantial 1957 sales advance over 1956. Norge now expects second half laundry equipment sales to beat the surging levels of last year. Other major manufacturers comment, off-the-record, that a second half gain in retail sales could equal last year's levels. One of these has revised his sights upward for the second-best year.

It's catching the manufacturer with his inventories low. Inventories are still based, often, on low production and 3-4 week delivery of cold rolled sheet and enameling iron, and off-the-shelf components.



TANK TRUCKS: Fruehauf is one of many using more stainless steel.

Tank Trucks Ride Stainless Trend

Truck producers report demand is increasing for stainless steel tanks.

New ICC regulations are expected to stimulate its use. High cost is still a drawback.

▪ Stainless steel sheet producers are looking for a big increase in shipments to tank truck manufacturers. Three major developments are behind it.

1) The Interstate Commerce Commission now permits petroleum trucks to haul chemicals. So many truckers with regular carbon steel tanks are ordering stainless to handle corrosive chemicals on return loads.

2) The trend toward hauling corrosive chemicals and other liquid bulk materials is on the increase. In some cases, plant storage tanks have been eliminated by fast truck deliveries.

3) Another ICC regulation now permits building stainless tank trucks in the same gage as low alloy-high tensile carbon steel. Historically the "penalty" for stainless was that one grade heavier gage was called for, boosting the cost, deadweight and fabrication.

Stainless Use Grows — G. H. Klouman, Armco Steel Co. marketing representative, expects these three factors to raise use of stainless for tank trucks from the present estimated 2000 to 3000 tons per year rate to about 15,000 tons.

One prominent builder even feels stainless tank truck output will outstrip conventional types in five yrs.

Potential Is Vast—For the present, however, total output of stainless tanks is still a drop in the bucket compared to other types. But it has a vast potential. Last year about 5381 gasoline truck trailers were built of which about 225 were stainless.

In the combined food trailer and LPG (liquefied petroleum gas) field the ratio was higher. Of 1128 tankers in this class, half were stainless. The great bulk of all trucks are still carbon steel, lined and unlined and aluminum.

Alcoa Unveils Major Expansion

New Equipment at Davenport Industry's Biggest

Alcoa completes $54 million expansion at Davenport, Ia.

New heavy equipment among largest in the world, will roll wider sheets, longer plates.

Rolled product capacity upped to 36 million lb per month, including 2 million lb of foil from eight new foil mills.

▪ Aluminum Co. of America has completed a $54 million expansion of its Davenport, Ia., plant. It is now one of the biggest and most integrated aluminum rolling facilities in the industry. Total investment is $130 million.

Much of the new equipment is among the world's largest including a 160-in. hot mill, widest in the industry; plate stretcher with a pulling force of 16 million lb, largest used on aluminum; a 100-in. cold mill, one of the most modern in its class; and plate heating and aging furnaces able to handle 60-ft long plates.

Eight new 66-in. foil mills and allied equipment, costing $13 million, have an annual capacity of 24 million lb.

Capacity Doubled—Total capacity of rolled products has been boosted to 36 million lb per month, double what it was when the Davenport plant opened its doors nine years ago. Alcoa says capacity can be upped to 40 million lb per month in an emergency.

E. B. Fassel, Davenport Works Manager, points out that currently, sheet, plate and foil account for more than half of domestic aluminum mill products shipments. By 1960, says Mr. Fassel, overall aluminum shipments are expected to increase 50 pct. But aluminum's use in transportation, architectural and packaging fields should grow by at least 60 pct, he adds. Output from Davenport will be aimed at these expanding markets.

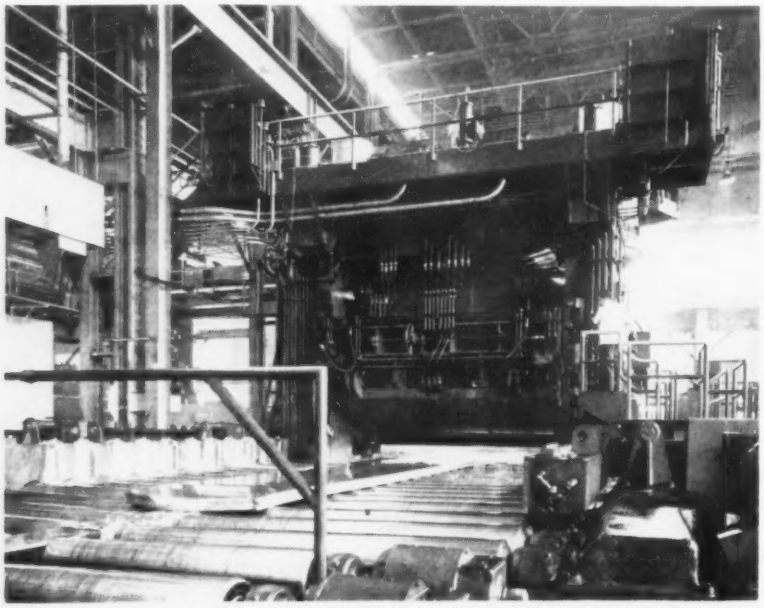
For Aircraft—Combined with the 144-in. rolling mill installed in 1954, the new heavy equipment makes Davenport the nation's leading facility for rolling, heat treating, and leveling aircraft sheet and plate in tapered form.

The plant will turn out extra-wide sheet in volume aimed at such other applications as trucks, trailers, mobile homes, railway equipment and commercial building.

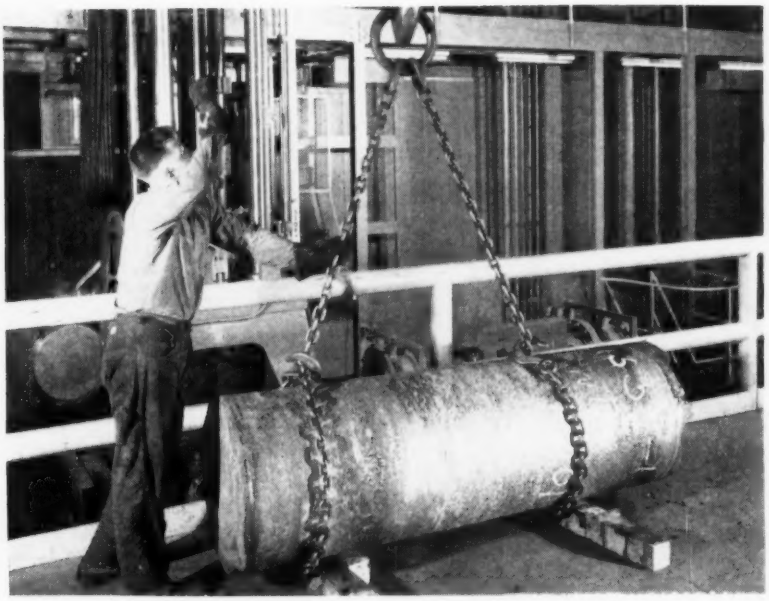
The Davenport installation is now capable of producing aluminum plate up to 6 in. thick, 12 ft wide and 60 ft long. Alcoa figures on selling this output to the petroleum and chemical industries for storage tanks and for jet aircraft, among others.

Looking Ahead—J. S. Hamilton, manager of foil, says industry foil sales will probably climb to 350 or 400 million lb annually in five or six years. About 190 million lb were sold in 1956. Alcoa expects the Davenport output to be "quickly swallowed up" because of its accessibility to this expanded market. About half the foil will be produced for packaging, but a new application, for coils on electrical equipment, should take about 100 million lb, says Mr. Hamilton.

Other Equipment — Additional equipment includes an automatic square shear, a 120-in. backup roller leveler, 3 strip shears, 2 package lines, an ultrasonic testing unit, new shipping facilities, annealing furnaces, six remelt furnaces and holding hearths, 3 direct chill ingot casting stations, 11 ingot soaking pits, 3 slab reheating furnaces, 1 slab shear.



WIDEST FOR ALUMINUM: This 160-in. hot rolling mill, said to be the widest in the aluminum industry, is one of the key pieces of heavy equipment in the $54 million expansion of Alcoa's Davenport, Ia., rolling facilities. Extra-wide sheet will be rolled in volume.



FIRST: The first super-alloy ingot ever produced by consumable electrode vacuum remelting is also the heaviest, weighing 12,000 lb. New 26-in. furnace is at Watervliet Works, Allegheny Ludlum Steel Corp.

MOLD: Copper crucible is the mold for an ingot of super-alloy in new vacuum melting furnace.

Vacuum Melting Moves Ahead

A-L's Ingot Biggest, Heaviest

Super-alloy ingots weighing 12,000 lb can be turned out on new consumable electrode vacuum melting furnace.

Availability of 26-in. ingots will widen applications for super-alloys

▪ A major advance in vacuum metallurgy came this week with the start-up by Allegheny Ludlum Steel Corp. of its jumbo consumable electrode vacuum melting furnace.

The furnace, believed by A-L to be the largest of its kind, will produce super-alloys at its Watervliet, N. Y., plant.

Biggest and Heaviest—It can turn out super-alloy ingots with 26-in. diam weighing up to 12,000 lb. These are believed to be the heaviest ingots to be produced by any vacuum melting process. Previously, the largest super-alloy ingots made by the consumable electrode process were 20-in. diam and weighed about 5000 lb.

Commercial availability of 26-in. ingots from the new furnace will permit use of super-alloys such as A-286 in many applications not previously feasible because of restricted ingot size.

Some Advantages — As examples, A-L engineers point to such components as gas turbine wheels, landing gear parts for jet transports and large retainer rings for steam turbine generators. These and other parts can now be made in larger sections of greater strength and dependability through availability of a 26-in. ingot.

Adds to Supply—The new furnace will also make available increased tonnages of super-alloys for use in high-temperature and high-stress applications in jet aircraft and engines.

A-L points out that its consumable electrode furnace produces ingots of extreme cleanliness and virtually free from segregation. These characteristics make the metals particularly suitable for applications requiring high ductility and fatigue strength.

The new furnace is A-L's third expansion of its Watervliet vacuum shop. Started in October, 1955, with an initial capacity of 250,000 lb per month, the shop now has a monthly capacity of 2 million lb.

Lukens' Soaking Pits

Salem-Brosius, Inc., Pittsburgh, will design and build nine soaking pits, an auto-floor box charging machine, and a number of materials handling trailers for Luken Steel Co., Coatsville, Pa.

If You Need Help in Personnel—

An Outside Recruiter May Be the Answer

You may like to do your own hiring, but possibly don't have the trained personnel staff necessary for filling specific jobs.

A professional personnel recruiter can do the job. There are also some rules for the hiring company to follow.

▪ Promotion from within is still the best general rule for building new management talent. But in many cases this is not feasible or even possible. The company must go outside for executives. And this is often a lengthy and unproductive search. For many firms, the "third party"—an outside executive recruiting service — can make a vital contribution.

Only you can know whether you need an outside recruiter. But know what you are buying. Confusion, misinformation and prejudice about the recruiter and his function are widespread.

Points of Value—With one important exception, the recruiter does nothing that a competent personnel staff within the company could not do, given time, money and facilities. Experience has honed the consultant's experience, tact and judgment, but lots of hard work is still the main ingredient.

The important exception which distinguishes the recruiter is that he is a third party. His role as "outsider" is often his greatest value. This can show up in several ways:

First, and most obvious, is the confidential nature of the recruiter's service. Your own experience will probably offer many examples where secrecy has been essential in seeking out new management talent. The outside recruitment specialist is in an ideal position to carry out such confidential business.

Should Know the Market—But this is by no means the limit of the recruiter's contributions through his third party position. Equally important, he "knows the market." He can advise on adjusting the theoretical requirements and rewards of a job with the realities of what manpower is available and at what price.

Companies have personalities too. Experienced recruiters consider it essential to get the "feel" of a company by plant visits, conversations with the staff and on-the-spot observation.

These and other advantages of the recruiter's position are summed up in the fact that he is a specialist. Your needs are probably not so unique to him as they are to you.

Follow the Rules — Assuming you have decided to call in an outside recruiter, what rules should govern your dealings with him? Here's what Paul T. Stafford, of Dunn & Wright Associates, New York, advises:

1. First and most important, select a firm with a good reputation. If you have heard about one by word of mouth, and chances are you have, ask for references.

2. Give the recruiter plenty of time to get acquainted. He is in a unique position to size up facets of your company.

3. Provide complete and realistic details about your company and the position to be filled. Avoid the parallel pitfalls of allowing one man to dream up requirements out of thin air or of producing a hodgepodge by committee.

4. Be honest and objective, especially about the "unwritten specifications."

5. It is important that the people who will actually do the hiring deal with the recruiter direct.

6. Allow enough time for a proper search. Recruiters are not employment offices with a lobby full of applicants. Several months is not too long.

How To Hire an Outside Recruiter

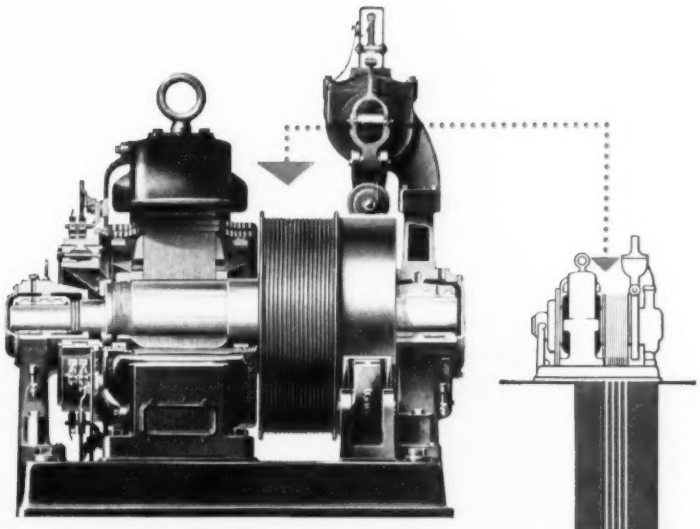
▪ Choose a recruiting firm with a good reputation. Check around. Ask for references.

Give the recruiter a chance to get the "feel" of your company. It will help him decide which candidates to recommend for the job.

Be frank. Provide the recruiter with a complete fill-in on the job requirements. But don't over-do it. After all, there are few supermen —if any—around these days. And somebody probably has snapped them up by this time.

The job of dealing with the recruiter should be assigned to a responsible executive of the company. The recruiter should also be in contact with the company official who will be the new man's superior.

Don't expect results overnight. If you want the recruiter to do a good job give him plenty of time. You consider the job to be filled important. You'll have to live with the new man a long time. The recruiter will better earn his commission if he has time to investigate all possible candidates for the job.



Otis Elevators Use HANNA PIG IRON

to support their ups and downs

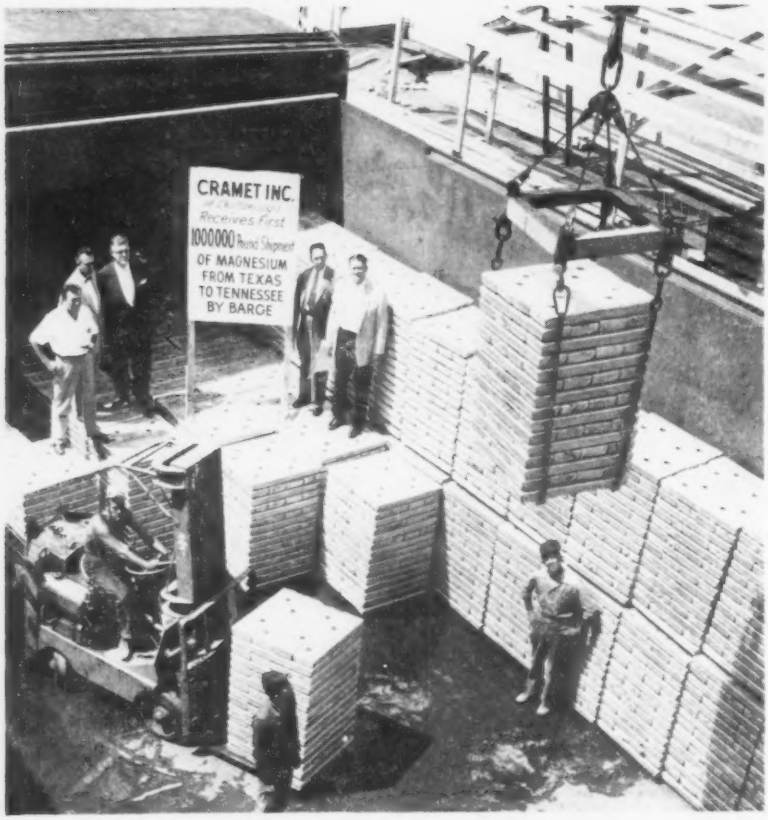
Rough finishing a one-piece sheave rim and brake pulley casting in the Otis Elevator Company's Yonkers foundry.

Center of action in the mechanism of Otis Elevator Company's high-speed (up to 1,400 ft. per minute) Autotronic passenger elevators is the one-piece cast iron drum shown in place in the top picture and in rough form below. Half of the drum serves as a sheave rim for the elevator's cables, the other half as a brake pulley. To maintain the high standards of quality and performance demanded of these drums, Otis Elevator's foundry at Yonkers, N. Y., casts them with Hanna Pig Iron.

The Hanna range includes the Hanna 38-pound pig, the foundryman's favorite standard, in all grades, silvery and HannaTite, a specially controlled, close-grain iron. Also available is the HannaTen, a smaller ingot, with finer grain structure and no free carbon pockets. For prompt, expert handling of your pig iron requirements, call your Hanna representative at any time.

HANNA
THE BEST KNOWN NAME IN IRON

THE HANNA FURNACE CORPORATION
Buffalo • Detroit • New York • Philadelphia
Merchant Pig Iron Division of
NATIONAL STEEL CORPORATION



PAY LOAD: One million lb load of magnesium ingots, valued at $350,000, was received in a single shipment by Cramet, Inc., at Chattanooga, Tenn., from Dow Chemical Co., Velasco, Tex. It took 30 days for American Barge Co. to haul the king-size cargo across the Gulf of Mexico, up the Mississippi, Ohio and Tennessee Rivers. It will be used to make titanium.

Alcoa Backs Dam For Part of Power

Aluminum Co. of America will put up 23 pct of the cost of building, and operating the Rocky Reach Dam on the Columbia River near Wenatchee, Wash., for 50 years, in return for power. This will include firm, interruptible and dump power.

The total project is expected to cost in the neighborhood of $250 million. Construction is currently under way, with the first generator scheduled to go into operation July 15, 1961. There will be a total of seven generators with a rated capacity of 710,000 kw.

Share of Power—Alcoa's share will be about 165,000 kw. Roughly 78,000 kw will be firm power, 22,000 kw high-availability interruptible power and 65,000 combined peaking and dumping power.

In order to take advantage of the additional power Alcoa will spend $10 million to expand its smelting plant at Wenatchee. Construction of a new potline, of about the same size as those now in operation, will start in 1960 with completion scheduled about the same time as the Rocky Reach power becomes available.

For Sale Elsewhere—The new potline will take about 50,000 kw. The rest of the Rocky Reach power release about 50,000 kw of Bonneville interruptible power, now used at Alcoa's Wenatchee plant.

Alcoa has the right to market whatever peaking and dumping power it can not use.

Zinc Smelter Closed

American Steel and Wire will cease smelting zinc at its Donora, Pa., plant around Nov. 1. The zinc works, which began operations 42 years ago, will be dismantled to make room for future expansion of the wire making operation.

L. F. McGlincy, operations manager, said the move was being made because the operation was no longer economical, and plentiful supplies of zinc are available at prices lower than it cost American Steel and Wire to make the metal.

Of the 550 men who will be made jobless by the shutdown, 100 will be assigned to the sulfuric acid plant, which will continue to operate. The company reports an effort is being made to place the rest in other plants of U. S. Steel.

Deepen the Delaware

Majority of congressmen indicate they'll push the deepening of the Delaware River Channel north of Philadelphia, despite some sharp criticism.

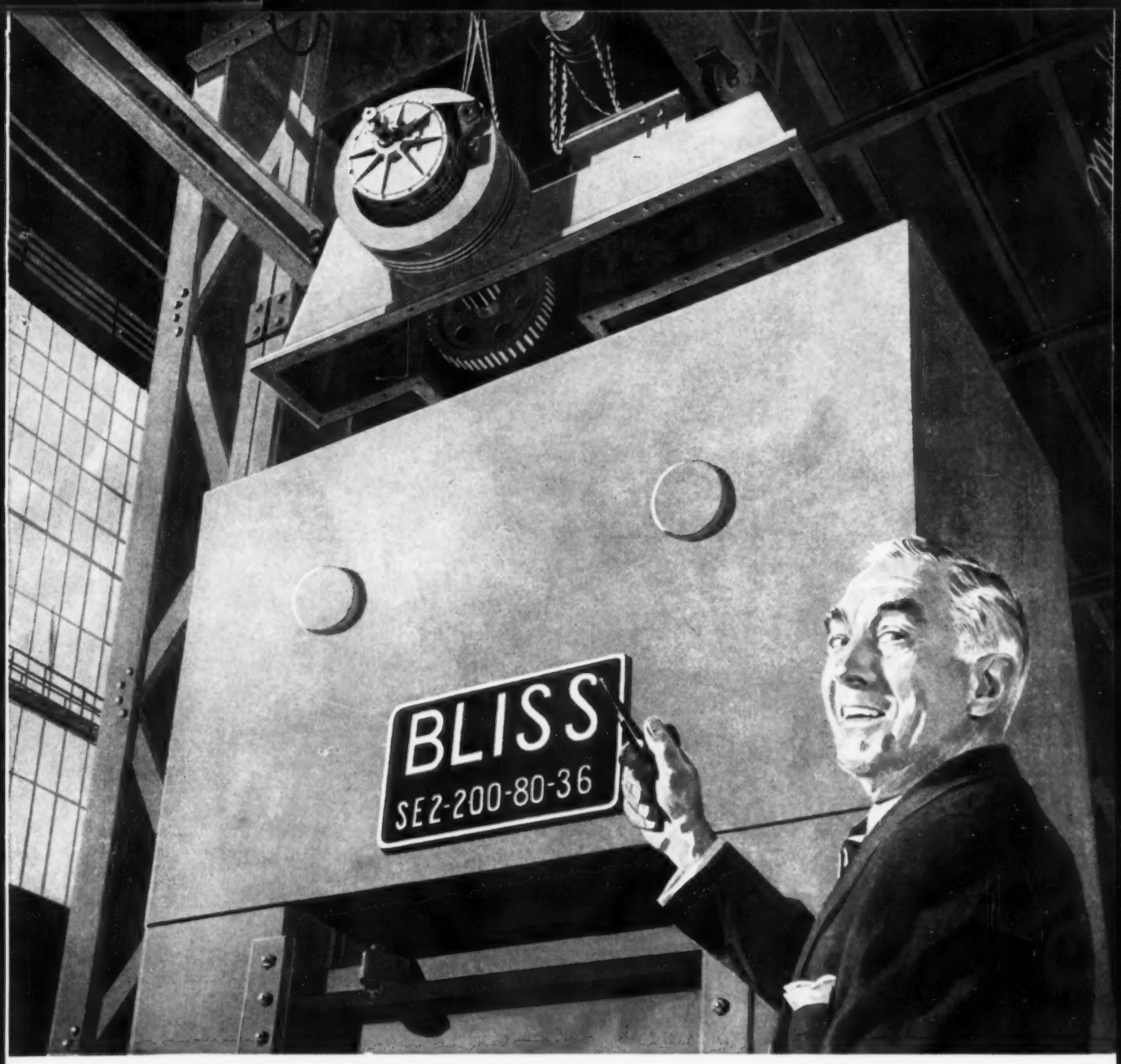
The Senate Appropriations Committee has approved $11 million to start dredging the 40-foot channel to permit deep-draft vessels to sail up the Delaware as far as the U. S. Steel Fairless Works, Morrisville, Pa.

California Strike

Strikes and lockouts last week had shut down or affected operations in 130 of 152 metal trades plants in San Francisco. Early this week, the dispute was still unresolved, with little expectation of a prompt settlement.

An official of the California Metal Trades Council, employer group, indicated that some 95 pct of the 8000 members, International Assn. of Machinists, are affected by the dispute.

The machinists are demanding a 20-30c an hour wage increase and provision for sick leave. Employers have offered an 11-18c wage boost.



"This used to take hours...

now the whole gearcase comes off in minutes!" Quite an accomplishment for an enclosed eccentric press. Too often the advantages of the enclosed design are gained by sacrificing the accessibility of the open design. Not so with Bliss, however: Bliss engineers count practical maintenance a design "must"—any new design that comes off the boards at Bliss keeps the maintenance man in mind.

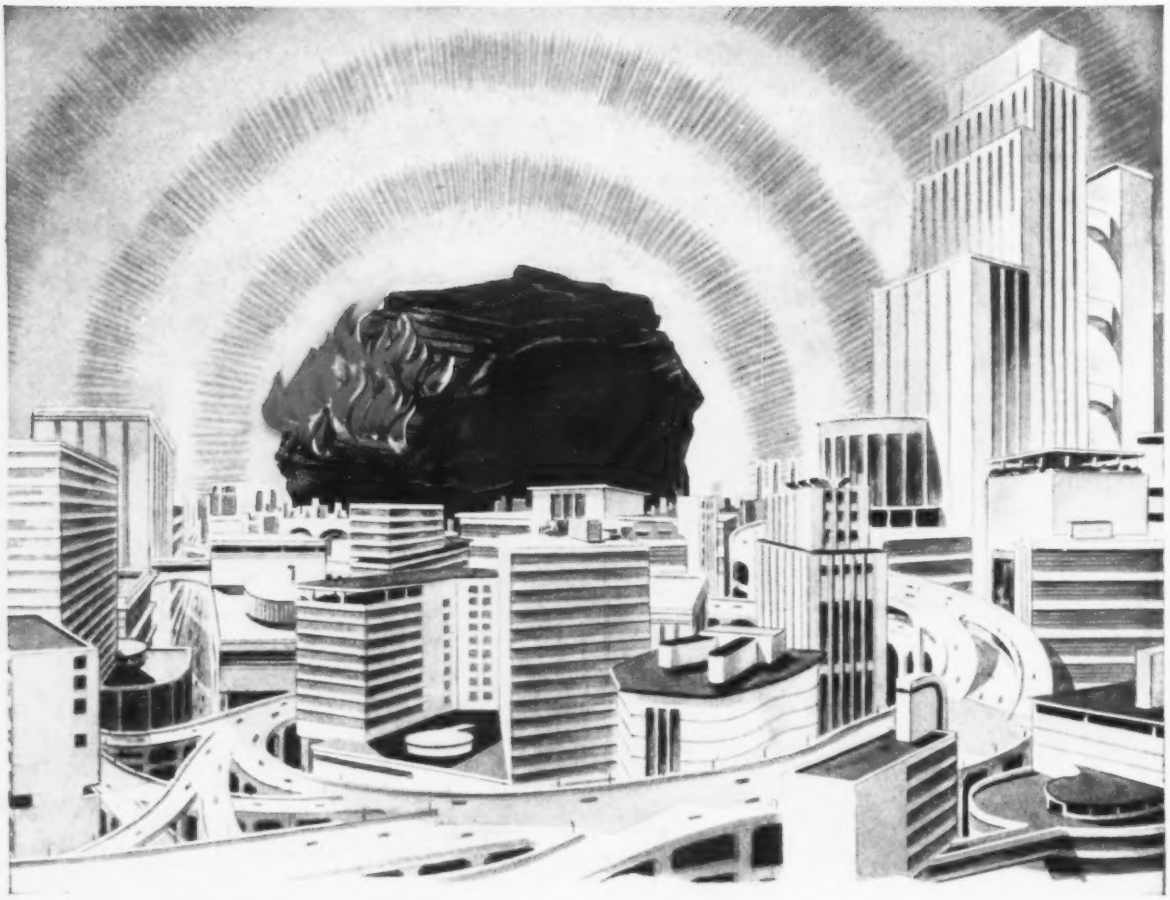
Which is one more reason why industry agrees, "Bliss is more than a name ...it's a guarantee."

BLISS
SINCE 1857

E. W. BLISS COMPANY · Canton, Ohio

100 years of making metal work for mankind

PRESSES • ROLLING MILLS • MILL ROLLS • DIE SETS • CAN MACHINERY • ORDNANCE



The fuel that sparked our nation's growth secures her greater future

A young America—primed by a new and power-packed fuel—became a great industrial giant almost overnight. Coal had supplied the first unwavering spark which was to grow into the brightest productive flame the world has ever known.

After being served so well in the past and present, America looks again to dynamic coal for greater prosperity and security in the future. The vast Bituminous fields along the Baltimore & Ohio contain excellent coals in wide variety—available for centuries to come.

Highly mechanized mines, equipped and ready for any demands, will help maintain long-range cost stability. And improved utilization methods will meet the increased requirements of the future by providing greater coal-burning efficiency.

CALL ON OUR COAL TECHNICAL SERVICE

You'll receive complete information from trained B&O experts about the kind and size of Bituminous coal that fits your needs best—at a price you want to pay. Write:

COAL TRAFFIC DEPARTMENT
BALTIMORE & OHIO RAILROAD
BALTIMORE 1, MARYLAND

BITUMINOUS COALS FOR EVERY PURPOSE

LINKING 13 GREAT STATES WITH THE NATION — B&O

Baltimore & Ohio Railroad

Constantly *doing things* **— better !**

A. H. Sommer

On-the-Job Management Pays

For more than 30 years, Al Sommer has been supervising steel production on the job.

There is too much going on at one time to keep track of from, say, a club lounge.

His policies, both business and personal, have won him the respect of his industry.

AL SOMMER: You've got to be informed of all methods and procedures.

▪ "You can't run a steel mill by remote control," explains Al Sommer, vice president and general superintendent of Keystone Steel & Wire Co. He refers to the management end of the business, not automation.

To really learn a mill's problems, he continues, you've got to talk frequently with the men who operate it. You have to observe the plant in action from the first charge of the openhearth to the last machine making finished end products.

All-Basic Pioneering — Recognized as one of the foremost openhearth furnace authorities in the nation, Al Sommer's pioneering experiments with all-basic roof designs have proved so successful that Keystone is adapting all its furnaces to that principle.

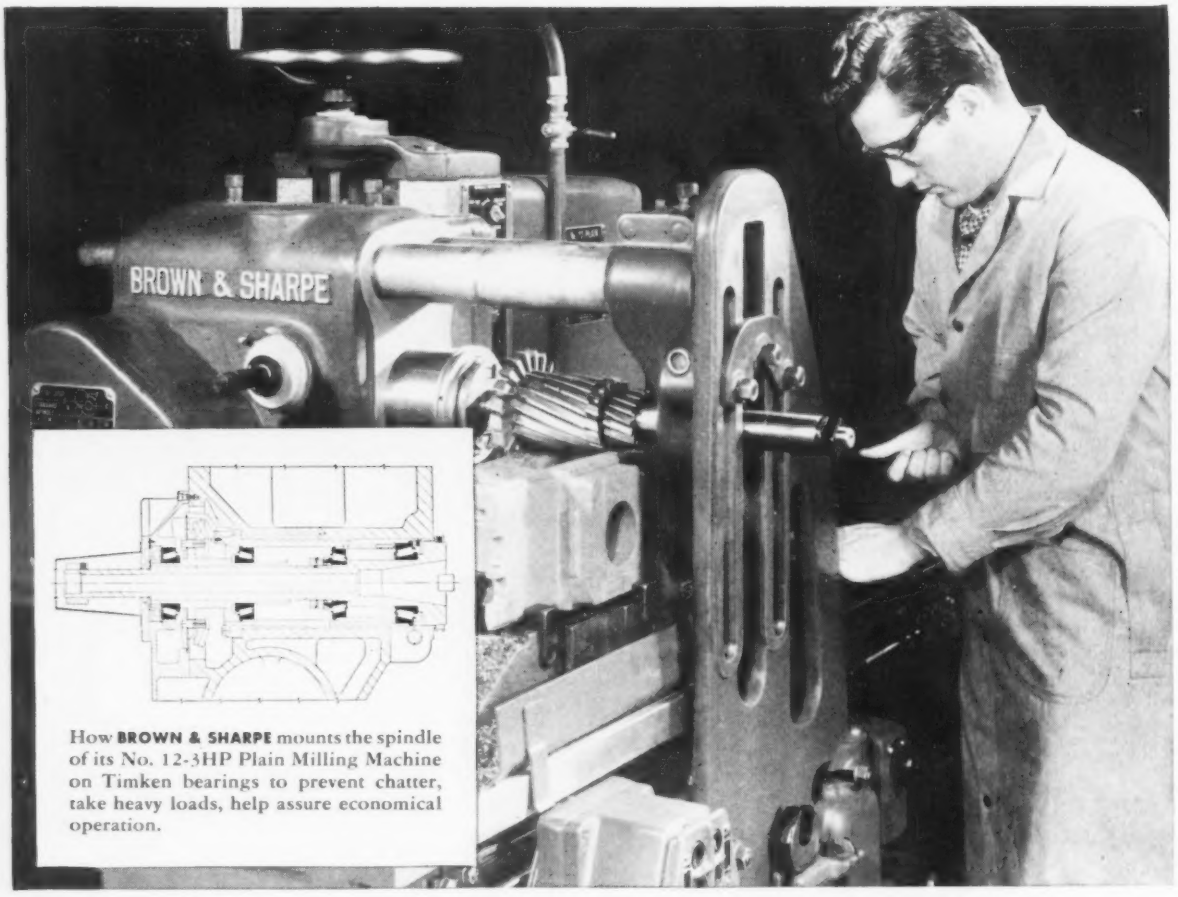
"You've got to be informed of all methods and production procedures which must be practiced to function successfully," Mr. Sommer says. Behind this advice is 30 years of steelmaking experience. Joining Keystone in 1926, he was named plant superintendent in 1935, to the board of directors in 1942, and to his present job in 1953.

Well Informed Optimist — The American Iron and Steel Institute has chosen him as a member of its technical committee for steelmaking. And he is a former board member of the American Institute of Mining and Metallurgical Engineers, serving on the Institute's National Openhearth Committee.

He is regarded by some as one of the steel industry's real optimists. For example, when his plane crashed recently because of landing gear failure, he emerged from the disabled craft, promptly boarded another and commented: "This only happens once in a lifetime, so I've had my share."

Safety Comes First—His regard for employee welfare is reflected to some extent in Keystone's safety policy, which he helped develop. It opens with the words, "We believe . . . that although we are in business to make steel and wire products, it will not be done at the risk of our employees' health and safety."

His objections to management by remote control apply also to community projects. For many years, Al Sommer has devoted his free time to the betterment of Peoria, Ill., home base for Keystone. He is a member of the Peoria Community Chest and Council, the Heart Fund, and is a board member of the Illinois Heart Assn.



How **BROWN & SHARPE** mounts the spindle of its No. 12-3HP Plain Milling Machine on Timken bearings to prevent chatter, take heavy loads, help assure economical operation.

Climb mills both ways . . . TIMKEN® bearings prevent chatter in heavy cutting

TO make heavy cuts without chatter, Brown & Sharpe mounts the spindle of its No. 12-3HP Plain Milling Machine on two Timken® tapered roller bearings. For smooth power transmission, they use four Timken bearings in the bevel gear drive to the spindle. And to take climb milling's pulsating loads, two Timken bearings are used in the feed screw drive. Result—production milling is fast and accurate. Here's why.

• SPINDLE RIGIDITY MAINTAINED

Timken bearings hold the spindle in positive alignment. Their tapered design lets them take *both* radial and thrust loads in any combination. And full line contact between rollers and races gives Timken bearings extra load-carrying capacity.

• HEAVY LOADS ABSORBED

Rollers and races on Timken bearings are case-carburized to have a hard, wear-resistant surface over a tough, shock-resistant core. They take heavy loads and come back for more.

• FRICTION VIRTUALLY ELIMINATED

Timken bearings are geometrically designed to have true rolling motion and are precision-made to live up to their design. Practically friction-free, they last longer and run smoother. And to assure complete quality control, we even make our own electric furnace fine alloy steel. No other American bearing maker does. So for your No. 1 bearing value, always specify bearings trade-marked "TIMKEN". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

TIMKEN BEARING EQUIPPED

This symbol on a product means its bearings are the best.

TIMKEN

TAPERED ROLLER BEARINGS ROLL THE LOAD

How Deep Are Inventory Cuts?

Inventory figures are confusing to say the least. Talk is all down, but figures keep going up.

You have to weigh prices, attitudes and production schedules in evaluating what's going on in inventory measures.

■ Not since 1954 has the subject of inventories and inventory control been so worked over—and possibly overworked.

At that time, radical reductions in stocks were blamed for a severe business letup that approached recession levels. It was particularly serious in several branches in metalworking.

Actually, the cutbacks in inventory from the high levels of 1953 compounded a declining rate of general business activity. The result was a much more serious business letdown compared with what would have been a much milder dip.

Are They Up or Down? — The inventory picture today is not the same as in 1954, but it is confusing. You have read a great deal about inventory cutbacks; probably have instituted them in your business. You probably have suffered from them to a mild extent from your own customers.

At the same time, you can look at the official figures of the Dept. of Commerce and see that inventory levels for manufacturing are about $4 billion higher than a year ago, just about the time all that inventory talk started. They are even up slightly from two or three months ago when it was being done in earnest.

Inflation a Factor—The official explanation is that much of the gain is in higher prices today, but that isn't the entire story. With all allowances and adjustments for higher prices, inventory adjustments just aren't what could be called radical.

Most businesses are sincerely trying to cut inventories. For one thing, money tied up in unnecessary inventory is money being wasted, particularly in these days of tight money when every dollar of cash can be put to work.

. . . Production Stays High

Looking Up—The general business outlook for the summer continues to be good; better, perhaps, than it appeared to be a few months ago.

According to the Dept. of Commerce, manufacturers' sales were up seasonally, while new orders increased more than usual for May, last month tabulated.

Sales by manufacturers were up 5 pct above the May, 1956 level. Sales of basic metals were off, as everybody knows, but this was compensated by improved deliveries of machinery and transportation equipment during the period.

New Orders Up — New orders were even more encouraging. May orders were up two pct over April, with all major industries except primary metals getting some share of the gain. Durable goods orders were down from May of 1956, however—$13.5 billion compared with $14.2 billion last year.

Unfilled orders of durable goods industries stood at $56 billion. This is a slight decline from $57.2 the previous month, but up slightly from $54.7 a year ago.

. . . Orders Are Still Good

High Level Anticipated — The plain fact is that most businesses are adjusting their inventory levels, but to a rate that is in line with a high level of business.

There is little evidence of manufacturers cutting back to a point that indicates pessimism or a significantly bearish outlook for the months ahead.

This is in contrast to the 1954 period. At that time, inventories of manufacturers were cut back about $4.5 billion in a year. During that time, the index of industrial production fell off a full 20 points.

Down Four Points—This year the index of industrial production (143 in May) is down four points from the record 147 in December of 1956, but is up two points from a year ago and stands at a level that would have been an all time high at that time. It could drop a few more points and still be at a creditable level.

On the inventory issue again, cutbacks in durable goods industries are in evidence, however. March level, seasonally adjusted, was $14.4 billion, with a drop to $14.1 in May. Level in May, 1956, also was $14.1. Considering the higher prices today, this does represent a significant drop in real goods in stock.

AUTOMOTIVE

Why GM Has Rear Window Blues

Buick and Oldsmobile Sales Suffer Silently

How does rear window syling affect a car's sales? More than you might have believed.

Yet GM's 3-piece styling probably was dictated by structural necessity.—By H. R. Neal.

▪ Few styling innovations in recent years have met with such universal disclaim as the 3-lite rear window offered on Buick and Oldsmobile cars. Long-time customers, who purchased cars again this year, are often as vocal against the windows as are the annual crop of "just looking" critics of auto styling.

No Company Comment—Why, then, have a three piece rear window in the face of a decided trend toward increased use of glass in automobiles? Auto experts and self-styled experts alike have tossed that question around among themselves and have advanced a number of theories. The few people who know the answer aren't about to confirm or deny anything.

CONTROVERSIAL: Few styling developments have raised as many eyebrows as GM's three-piece rear window, above, on Buick and Oldsmobile 1957 models.

NEW TREND?: Chrysler Imperial has curved glass side window. In new styling trends, more attention is going to glass and window treatment.

One of the earliest and most persistent rumors proposed that the 3-lite window styling was done on purpose. That it was a move to take the pressure off the company of trust busters. After all, GM could afford a "poor" year and it would help the other companies.

Economy Theory—There is an element of truth in this line of thinking—but only one. The 3-lite window did re-appear on purpose. But auto companies don't willingly give away business to competitors for any reason.

Other theories present stronger cases based on sound reasoning. Their proponents approach the question from two angles nearly alike and reach similar conclusions: the 3-piece rear window is both a styling and engineering innovation motivated by economy without sacrifice. One group starts its reasoning with the roof panel, the other with the glass itself.

Vibrating Roof Theory — "Oil canning," the drumming noise made by a vibrating sheet of metal, is claimed to have been a problem in roof panels of 1957 Buick and Oldsmobile prototypes. Those who lean toward the roof approach feel this must have been a serious problem. By pressing "ribs" into the offending panel, they point out, strength could be gained without additional hidden supports and at a considerable savings.

Buick and Olds both employ this technique. Two ribs extend the length of the roof, down through the rear window, and end in the rear deck lid. The ribs dividing the window help support the roof panel.

Glass Is Factor—Glass fanciers

YESTERDAY: Rivets
TODAY: High Strength Bolts

TOMORROW? More high strength bolts —for that is the new way of erecting steel structures.

Less and less will there be the raucous rat-a-tat-tat of riveting, jangling the ears and nerves of the community. In its place, the faster, quieter, better technique of bolting.

What has helped make this better way of multi-story construction possible? RB&W high tensile bolts. These bolts make stronger connections than rivets. They can withstand tremendous stresses, can tie a towering steel structure together in less time than rivets . . . at less overall cost.

RB&W—A MAJOR SUPPLIER TO ALL INDUSTRY

A leader in its field for over 112 years, RB&W turns out the finest fasteners for virtually *every* major industry. It is the *largest independent producer* of high strength bolts for construction.

Modern facilities, new techniques, long experience . . . all combine to make RB&W fasteners truly the "strong point of any assembly."

CONTACT THE RB&W "FASTENER MAN"

Standard fasteners properly applied can be a cost saver. Put it up to the RB&W "Fastener Man" to show you. Contact your nearest RB&W office.

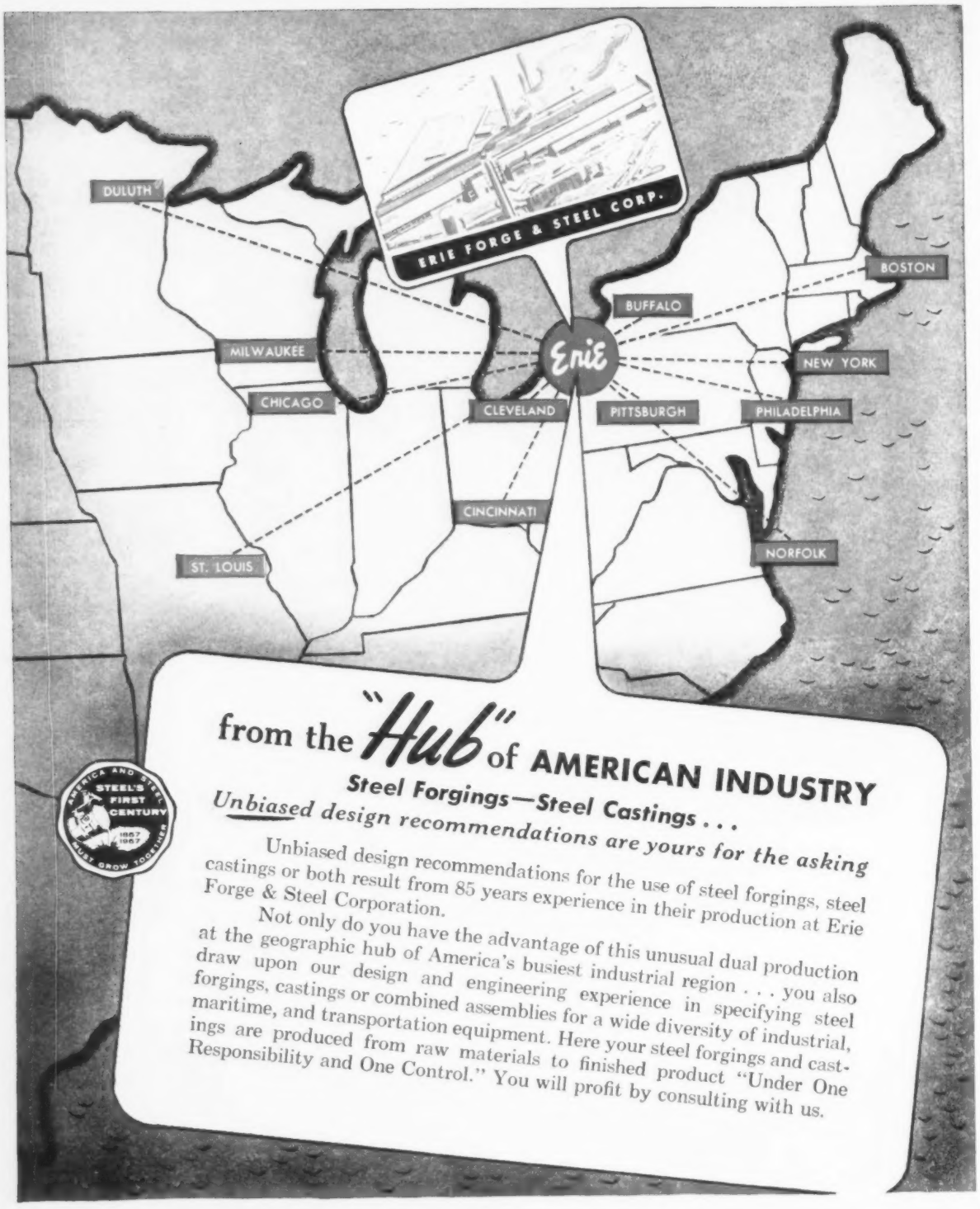
RB&W

112th year

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver. Fargo (N. D.). Distributors from coast to coast.

RB&W FASTENERS - *Strong Point of any assembly*



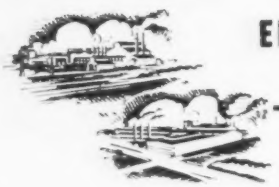
from the "Hub" of AMERICAN INDUSTRY

Steel Forgings—Steel Castings . . .

Unbiased design recommendations are yours for the asking

Unbiased design recommendations for the use of steel forgings, steel castings or both result from 85 years experience in their production at Erie Forge & Steel Corporation.

Not only do you have the advantage of this unusual dual production at the geographic hub of America's busiest industrial region . . . you also draw upon our design and engineering experience in specifying steel forgings, castings or combined assemblies for a wide diversity of industrial, maritime, and transportation equipment. Here your steel forgings and castings are produced from raw materials to finished product "Under One Responsibility and One Control." You will profit by consulting with us.



ERIE FORGE & STEEL CORPORATION

ERIE, PENNSYLVANIA

MEMBER AMERICAN IRON AND STEEL INSTITUTE

ERIE FORGE & STEEL CORPORATION

Automotive Production

WEEK ENDING	CARS	TRUCKS
July 13, 1957	112,618	22,676
July 6, 1957	73,682	14,051
July 14, 1956	112,361	21,412
July 7, 1956	68,110	11,561
TO DATE 1957	3,559,426	613,089
TO DATE 1956	3,356,555	626,130

*Estimated. Source: *Ward's Reports*

argue the possible economies to be gained from a 3-piece window. Curving of the glass would be easier, thus less costly. More compact packaging would reduce packing, handling and storage costs. And they go along with the added strength theorists.

However, it appears that if someone is to be blamed for GM's 3-piece rear window, it should be the stylists and not the economists or engineers. A glass company representative said that it costs as much or more to make the 3-piece rear window.

Stylists Must Answer — Most other car makers have been faced with a similar roof panel problem —and have solved it in much the same manner as GM. Ribs, channels or what not have been pressed into roof panels of nearly every car that underwent a complete change in 1957.

Thinned roof lines dictated the method to be employed in order to gain greater rigidity. However, it is the stylists who have been forced to justify the results. Cars, they say, have been lowered to such an extent that we now look down on a car when alongside it. The ribs are a move to put interest into these large areas of plain metal.

Mercury's Approach—Mercury's Turnpike Cruiser line features a 3-piece rear window that has not been criticized. The center section can be rolled down into the trunk. Unlike either Buick or Olds, Mercury's approach was to minimize the 3-piece appearance of its rear window.

Despite poor reception by the public of this styling-in-glass experiment, not all of this year's window innovations have been a failure. Chrysler Corp. introduced curved glass side windows in its 1957 model Imperials.

More Glass Coming — Reports indicate no other autos will have curved side windows in their 1958 models. It is probable this feature will not be adopted by other car makers until the next big change is due in 1960 as it will require extensive changes in door construction.

Updraft in Auto Air Conditioner Sales

Sales of automobile air conditioning units are running at a comparatively hot pace this year. All manufacturers report extensive sales gains of this luxury accessory. As might be expected, the Southwest is the leading market by a wide margin, followed by the Southeast. The more temperate Northeast region is still the poorest market.

Buick reports sales of air-conditioned cars amounted to 16,750 the first six months of this year compared to 13,088 in the same period last year. Buick dealers equipped nearly 5000 units. Buick and its dealers equipped 30,584 cars with air-conditioning last year.

All Show Increases — Dodge claims auto air conditioning sales jumped 500 pct over last year. Some 6600 cars have been ordered and model year sales are expected to exceed 7000 units. This compares to a figure of 1332 for the 1956 model year, 1276 for 1955 and 419 for 1954.

Cost Comes Down—Why such a sudden growth in the popularity of auto air conditioning units? Cost is probably the big factor. Combined heater-air conditioner suggested price for Ford is $367. In 1955 it was $435 plus installation. A heater alone costs about $75-100.

Health and safety factors are cited by a Chrysler executive. People suffering from sinus or respiratory ailments benefit from lower humidity. Cooler temperatures save hot heads in traffic. You are less irritated by traffic delays when you are comfortable.

THE BULL OF THE WOODS — **By J. R. Williams**

JUST LOOK AT TH' FAKER! THE OTHER GUY BUMPED HIS SORE FINGER, BUT WHAT A BIG DEAL TO MAKE OUT OF A LITTLE SPLINTER! WATCH NOW--HE'S GONNA HOLD THAT POSE TILL THE BULL COMES BY, HOPIN' THE BULL WILL SEND HIM HOME! THIS OUGHTA BE GOOD!
BETTER THAN YOU THINK! IT'S FIVE HOURS TILL QUITTIN' TIME AND THERE'S AN AWFUL LOT OF AGONY GOIN' TO WASTE-- THE BULL WENT HOME SICK HIMSELF!
HOOOOH!
THE LOST CAUSE
J.R.WILLIAMS

FIRST 2 OXYGEN CONVERTER INSTALLATIONS IN THE UNITED STATES EC&M CONTROLLED!

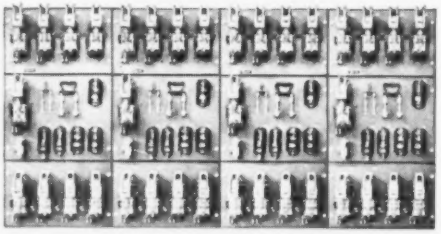
for basic steel making... it's EC&M CONTROL

EC&M control has proved itself by years of consistent performance in basic steel making processes —ore handling, hearth charging, ladle cranes, hot metal mixers, Bessemer converters.

The same exacting standards of safety and efficiency have been designed into the EC&M equipment which controls the new Oxygen Converter process.

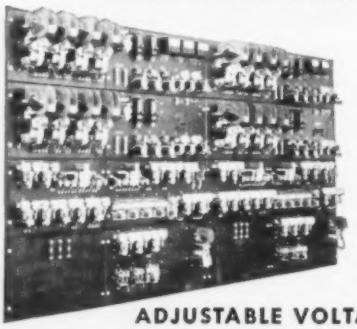
You'll find your nearby Field Engineer a source of sound counsel in solving any electrical control problem.

2 Types of Control for 2-Motor Vessel Tilt Drives

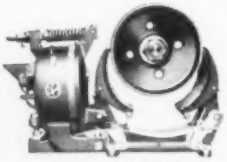


CONSTANT POTENTIAL

1. Speed Control Master Switch



ADJUSTABLE VOLTAGE



2. Dual-Coil Series or Shunt Wound Brakes

THE ELECTRIC CONTROLLER & MFG. CO.
A DIVISION OF THE SQUARE D COMPANY
CLEVELAND 28 • OHIO

8853

Hard Money Policy Continues

Prices, Wages Prevent Credit Easing

You'll have to put up with the Government's hard money policies for some time to come.

In spite of tight money, demand for loans for expansion stays high.—By G. H. Baker.

■ Hard money, it now appears, is to continue indefinitely. Higher wages and higher prices are to blame.

The Eisenhower Administration's top-level financial experts say now there's no hope that money rates can be eased any time soon. Inflationary pressures are too strong to risk any cheapening of money rates, it is argued.

Money Comes High—As long as prices of virtually every item made of metal continue to nudge upward, the cost of borrowing money is going to stay high. Earlier hopes for an "easing off" of credit charges have been dashed.

If your firm is planning to borrow funds for any purpose, you might as well move ahead with such plans now. Waiting won't change the picture.

Money rates are not coming down any, so you might as well prepare to meet the going cost of bank credit.

Demand Stays Strong—Lending reports arriving at the Federal Reserve Board from the nation's banks show that money for expansion projects continues in brisk demand. Borrowers are competing briskly for funds, and stiff interest rates are not resulting in any marked slowdown in lending.

Even though several soft spots (autos, homebuilding, consumer durables) are still evident, gross national production continues its upward climb.

China Ban to Stay

The Eisenhower Administration reassures Congress it intends to stand firm against trading with Communist China. The ban will stay in effect as long as Red China is a threat to the security of the United States, Ike's Secretary of Commerce, Sinclair Weeks, tells a Senate committee.

Mr. Weeks also tells the senators he suspects Britain and Japan, who recently decided to develop their trade with Red China, have over-estimated the potentialities of such trade. This is true because Red China's factories are producing few quality consumer goods.

Gen. Baker Retires

Maj. Gen. David H. Baker, director of procurement and production, Air Material Command, Dayton, Ohio, since 1953, is retiring. He will join a still-unnamed organization.

In May, Gen. Baker warned of forthcoming cuts in Air Force needs for manned combat planes and of future cutbacks affecting aircraft contractors and subcontractors (THE IRON AGE, May 23, 1957).

Capital Makes Evacuation Plans

Run for Cover—The "abandon Washington" run-through now being tried out on government officials is a much sketchier exercise than was held here a year ago.

Legions of bureaucrats and their secretaries are "fleeing" Washington in mid-July in a test of mobilization alertness. The brief-case toters and their Girl Fridays are heading for official government hideouts located at safe distances (out of bomb range) from Washington.

All Equipped—The hideouts are equipped with desks, files, and limited facilities for telephone and teletype communication. Theory is that if Washington is ever bombed out, the government's thousands of departments, bureaus, commissions and agencies will continue to operate from remote locations.

President Eisenhower is taking part in this year's exercises, just as he did a year ago. But he served notice this year that he could spare not more than 24 hours for the war games. Last year, he took part for several days.

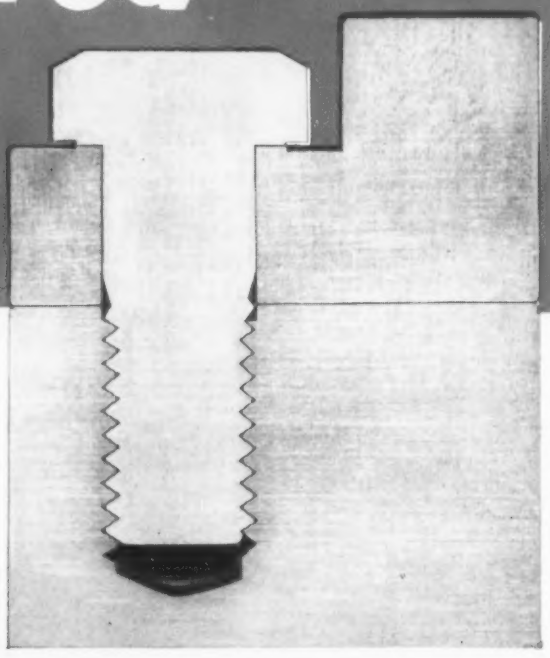
New Techniques—All told, only a few dozen officials will take part in this year's exercises, as compared with literally thousands involved a year ago at this time.

A new angle to the "abandon Washington" operation this year is the greatly-increased number of helicopters now available to ferry the chair-borne brigade out of Washington. Two helicopters are assigned exclusively to the President.

Dozens of larger helicopters are assigned to the various departments and agencies. The larger establishments, like the Pentagon, have their own landing mats located on the front lawn.

Engineered

TO REDUCE FASTENING COSTS



LAMSON

THE HEAD TO REMEMBER FOR ASSURED PERFORMANCE

1038

1038 CAP SCREWS

SIZE RANGE ¼" to 1½" in diameter
½" to 12" in length

8 WAYS TO SAVE MONEY BY USING LAMSON 1038 CAP SCREWS:

For any given strength requirement, LAMSON 1038 HIGH TENSILE CAP SCREWS can do the job with a MINIMUM:

1. Initial fastener cost
2. Screw diameter
3. Screw length
4. Tapped hole diameter and depth
5. Drilled hole diameter
6. Handling expense
7. Assembly cost
8. Inventory expense

Write for the special FREE bulletin on Cap Screw analysis

Western Research Aids Metals

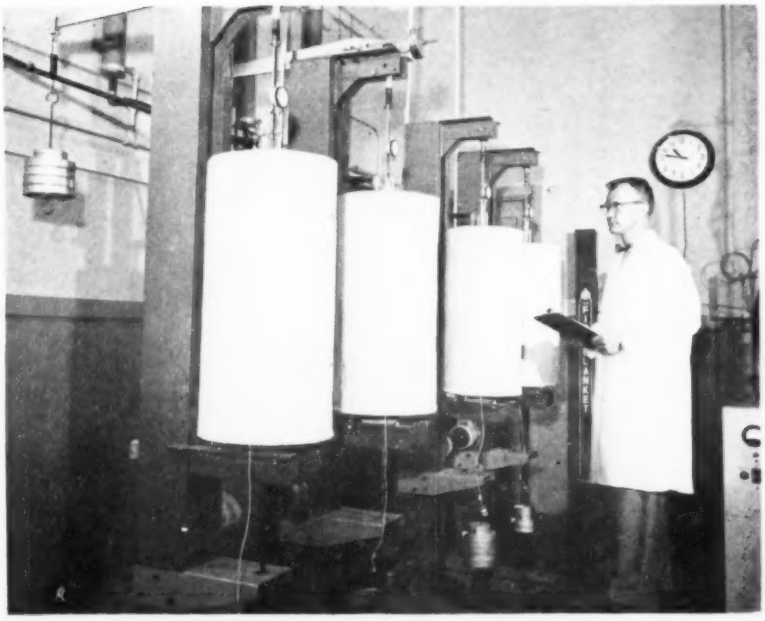
Institute Does Jobs for Many Firms

Success in solving research riddles is one reason why Stanford Research Institute is enlarging its metals staff.

One of the projects tackled is developing of high temperature alloys.—By R. R. Kay.

▪ Metals research in the West—as conducted by the Stanford Research Institute—provides a big plus for metalworkers there and elsewhere in the U. S.

Founded by Western industrialists, the Institute is a non-profit organization numbering such West Coast firms as Columbia-Geneva Steel, Kaiser Aluminum, Boeing, Lockheed, and Crown Zellerbach among its clients. Companies in other areas are served also. They include Eastman Kodak, I.B.M., General Electric, Sylvania, R.C.A., Minneapolis-Honeywell Regulator, and the Rand Corp.



CREEP TESTING: Metallurgical Dept. of Stanford Research Institnte at Menlo Park, Calif., is currently using low temperature creep testing machines for investigation of lower melting point metals like lead alloys.

What's Cooking — Metallurgical projects, conducted in the Institute's two-year-old metallurgy department, are an important part of SRI's activities. To handle them the metallurgical staff, now 16, will be increased to 26 within the next six months.

One of the top current undertakings concerns the development and applications of high temperature alloys. The Tungsten Institute is sponsoring research to find tungsten base alloys with useful engineering properties at 2000°F and higher. Aim is to use them in eventual applications in gas turbines and nuclear reactors.

The metallurgical department, already equipped with a variety of testing and processing equipment, is now installing a forging hammer and rolling mill. Facilities for pressing and sintering refractory metal powders is on order.

Passport Science—Of SRI's total research volume, about half is for commercial and industrial organizations. It also has a wide range of activities abroad. Last year, the Institute's specialists visited more than 50 countries in connection with 20 research projects.

SRI has more than filled the prescription "for an applied research organization to help in meeting the technical and economic problems of the West Coast region."

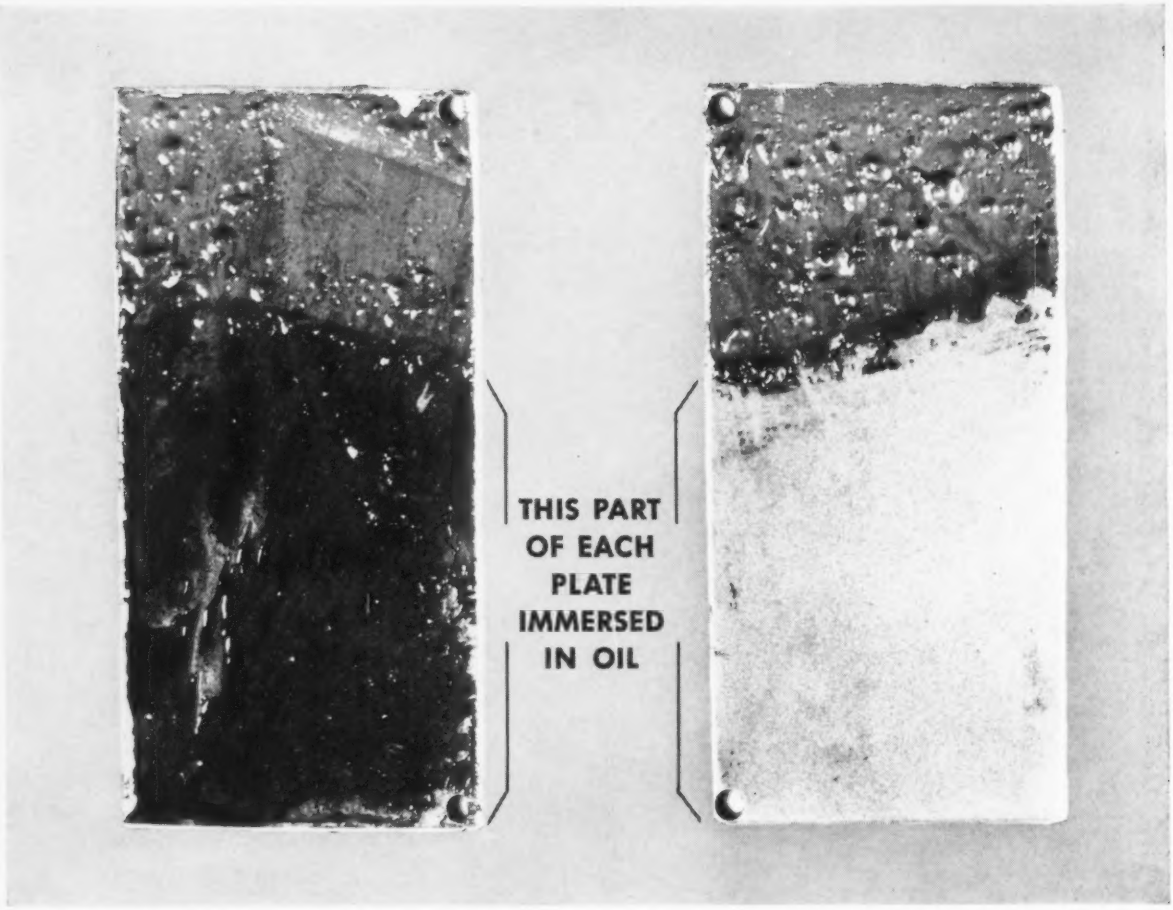
High Score—Last year, as the Institute noted its 10th birthday, it had a proud record of achievements to tally:

Contract research was rolling in at the rate of $1 million a month for a year's total of $12.6 million. This was a 25 pct gain over the previous 12 months.

The year opened with 334 active projects under way. In the following 12 months, 426 new ones were started and 345 projects were completed. At year's end, 415 assignments still were active.

In two years, the Institute's net worth jumped 200 pct—to $3.3 million.

The staff, heavily loaded with professional and technical people, (they numbered 800), has increased to a present total of 1410.



This sludge-coated metal plate was partially immersed in a beaker containing a *regular hydraulic oil* heated to normal operating temperature. Though the oil was agitated throughout the test, nearly all the sludge remained on the plate.

This similarly sludge-coated plate was partly immersed in a SUNVIS 700 oil, also heated to normal operating temperature. During the same period, with the same degree of oil agitation, the immersed part of the plate was rinsed clean of sludge.

Simple test shows how

SUNVIS 700 OILS CLEAN HYDRAULIC SYSTEMS...WITHOUT SHUTDOWNS

Sunvis 700 oils clean while they work. Their cleansing action removes deposits in systems contaminated by dust, sludge, varnish, and other foreign materials.

SUNVIS 700 oils carry these contaminants in suspension for easy removal. This eliminates costly teardowns. Systems stay clean. In addition to being ideal for hydraulic systems, SUNVIS 700 oils are also suited for circulating systems and gear boxes.

If you want exceptional cleaning ability, oxidation stability, rust prevention, film strength, you need SUNVIS 700 oils. Ask your Sun representative for full details, or write to SUN OIL COMPANY, Philadelphia 3, Pa., Dept. IA-7.

INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY Philadelphia 3, Pa.

IN CANADA: SUN OIL COMPANY LIMITED, TORONTO AND MONTREAL

SUNOCO

©Sun Oil Co., 1957

Make Assembly Part Of Design

Give Machining Attention, Expert Says

If machining and assembly needs are considered early in product designing they may save equipment costs.

Inefficient manufacturing setups can result when they are ignored.—By E. J. Egan, Jr.

▪ Does the price you're quoted on an automated machining setup or automatic assembly equipment scare you? Better take another look at your product design. It may be all wrong for efficient handling, requiring so much fixturing gadgetry that automatic processing makes no sense at all.

It's not enough to design a mass-production item so that it functions properly and is also pleasing to the eye. According to Kurt O. Tech, engineering vice president of The Cross Co., Detroit, the ideal product design must also be compatible with the most efficient manufacturing methods.

Late Attention Or None—Mr. Tech says that, all too often, design for the best machining and assembly practice gets tail-end consideration, if it gets any at all.

He doesn't advocate putting the manufacturing influence ahead of engineering and styling. In fact he cautions that "you cannot compromise engineering in the interest of manufacturing."

But he does believe that manufacturing deserves equal billing when the product design curtain goes up. "It will be necessary," he feels, "for the manufacturing engineer to participate at the inception of the product design in order to do the most good."

Too Late To Change — What happens when a product is fully engineered and styled and is then sent out to a machinery building firm with the demand to "build us some fast, accurate and inexpensive equipment to makes these parts"? Such situations are not unusual in the Cross organization.

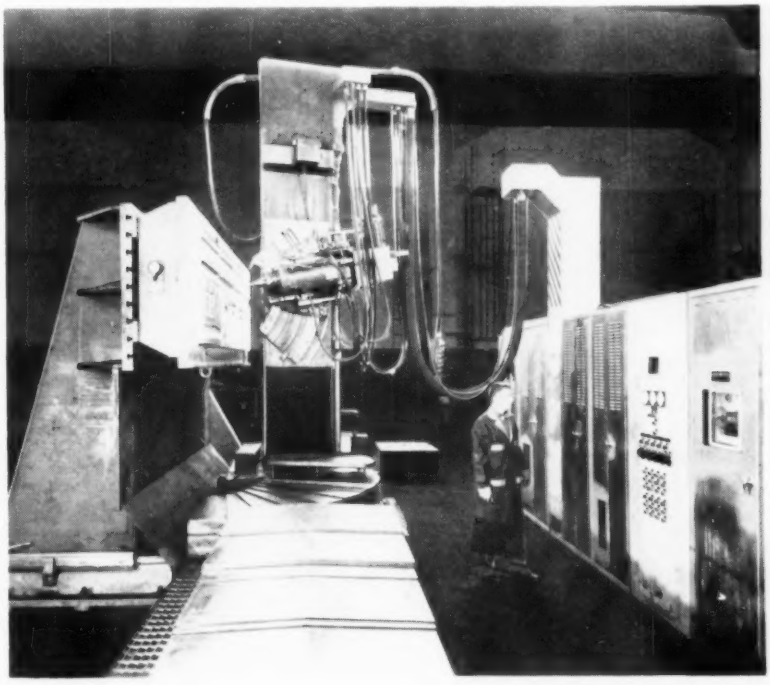
Sometimes the machinery builder can recommend changes in product design that make the manufacturing job easier. "But many times," Mr. Tech says, "by the time we receive prints and orders, plans for fabricating the various parts have been carried out to such a great extent that it's impossible to revise them." It's obvious that this boosts equipment costs.

Assembly Is the Key—Here's another bit of advice. If you're going to give manufacturing a crack at product design, go all the way to the end of the line and put assembly considerations at the head of the list.

As Mr. Tech explains it: "The design which is easily handled through assembly operations will obviously be easily handled through machining operations. And if the proper clearances are provided for assembly they will also be available for machining."

So, on products you want to make automatically, pay particular attention to (1) guiding surfaces that allow simple part transfer, (2) proper locating surfaces.

PROFILE MILLING: Air Material Command is buying a number of these 5-axis numerically controlled profile milling machines from Giddings and Lewis. Machines are called Variax, the control system Numericord.



INDUSTRIAL BRIEFS

Thirsty Crowd — Granite City Steel Co. has put its new river water pumping system into operation. It has a capacity of 38 million gal. a day. The water system has a 10-million gal. reservoir with an attached pumping station, and about 5 miles of underground pipeline. Granite City is also engaged in a $33 million expansion program. Its steelmaking capacity is expected to increase to 1.5 million tons a year by the end of 1958.

Industry's Best Friend — The newly elected president of the Industrial Diamond Assn. of America, Inc. is W. L. Huber. Also elected were Morris Winston as first vice president, and Don Wallace as second vice president. Mr. Winston is with Diamond Drill Carbon Co., New York, and Mr. Wallace is with Wheel Trueing Tool Co. of Detroit.

Quarter Century of Service—B. B. Evans is retiring as president of the Alloy Casting Institute after 25 years of metallurgical research activity. F. M. Fahrenwald, president of the Fahralloy Co., Harvey, Ill., has been elected the new president.

In Action Next Year — Acme Steel Co., Riverdale, Ill., has awarded a contract for three batteries of soaking pits to Salem-Brosius, Inc., Pittsburgh. The pits will be rectangular, dual-fuel and top-fired, with four pits per battery. Acme Steel will use the pits in conjunction with a new melt shop of the oxygen converter type. The complete unit is scheduled to be in production by the fall of 1958.

Three Prong Attack — Kennametal Inc., has completed its enlargement of manufacturing facilities at the firm's Chestnut Ridge and Detroit plants. An addition to the mining tool division is now under construction at Bedford, Pa., and is expected to be ready for operation late this summer.

New Chief—A. R. Teifeld, has been elected vice president of the National Industrial Advertisers Assn. in New York. Mr. Teifeld is director of advertising and public relations for Copperweld Steel Co., Pittsburgh. He has served as president of the Pittsburgh Chapter, national director, and national chairman of the Association's Business and Public Relations Committee.

No Recess — A welding school is now operating 24 hours a day at General Electric's Large Motor & Generator Dept. in Schenectady, N. Y. The company has invested more than $75,000 in equipment facilities. Individualized practical instruction in all kinds of welding is provided to a maximum of 51 students at a time.

Underway at Interlake — Interlake Iron Corp. will expand ore yard and dock facilities. A new man trolley ore bridge and an ore unloader will be erected for the corporation's Federal Furnace plant in Chicago. Both will be built by Dravo Corp., Pittsburgh, under contract from Arthur G. McKee & Co., Cleveland.

Extruding Moly — Commercial extrusion of tubing made of molybdenum, a metal suited for nuclear power plants, jet engines, rockets and missiles, has been announced by Wolverine Tube Div. of Calumet & Hecla, Inc. The extrusion process was developed by Wolverine Tube engineers in cooperation with Climax Molybdenum Co., which supplied the molybdenum billets and basic data on the metal's characteristics.

Italian Invasion — A newly formed company, Celene, S.P.A., will manufacture and market high-pressure polyethylene in Italy. The new organization is jointly owned by Union Carbide Corp. and Societa Edison of Milan. Plans call for supplying initially 24 million lbs of polyethylene annually to the Italian plastics industry. Ownership of the new company is shared equally by the two principals.

Fallout Windfall — The Victoreen Instrument Co., Cleveland, has an order for over $1 million from the General Services Administration. Equipment includes portable survey instruments for measuring and monitoring contamination caused by radioactivity and radioactive fallout. It is being procured by the General Services Administration for the Federal Civil Defense Administration.

Inhibited Corrosion — A new corrosion inhibitor for use in sulfuric, sulfamic and phosphoric acids has been developed for metal treating operations such as descaling and pickling baths. The product is an aliphatic derivative made by the Chemical Div. of Armour & Co. It can be used where acids are employed to chemically remove undesirable coatings from metal surfaces.

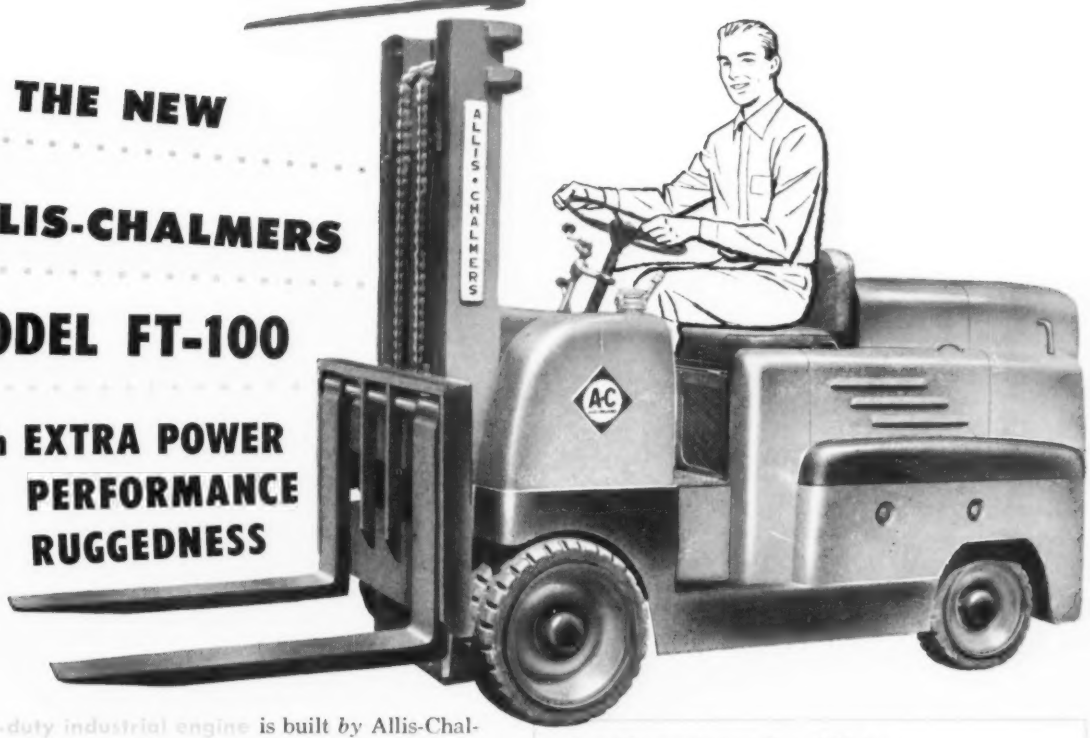
Cool Operation—The Trane Co will provide air conditioning equipment for a new factory being erected for the Teletype Corp., a subsidiary of Western Electric Co., in Skokie, Ill. Trane is to provide 2,500 tons of cooling through two giant centrifugal water chilling machines. The machines will provide cooling equivalent to melting 5 million lbs of ice every 24 hrs or enough to air condition 1,000 homes.

"No, sir, you won't find many firms with the employer-employee relationship we have here!"

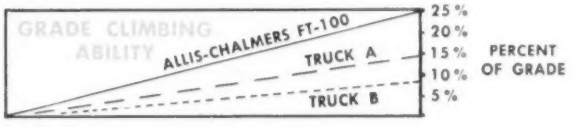
Here's a 10,000-lb lift truck that's Right for the job!

THE NEW ALLIS-CHALMERS MODEL FT-100

with EXTRA POWER PERFORMANCE RUGGEDNESS



Heavy-duty industrial engine is built *by* Allis-Chalmers specifically *for* lift truck service. This large (230-cu in. displacement) engine provides high torque at normal engine speeds, *gives the truck power enough to carry a full load up a 25-percent grade.* User records show Allis-Chalmers industrial engines not only outperform others, but operate many hours longer before overhaul. Available in diesel, gasoline or LP gas.



Workingest truck in its class. The FT-100 has the extra weight, traction and operator controls for superior performance. Its added weight is well placed to provide stability for heavy loads and high lifts. Excellent traction means extra usefulness, ability to work under adverse conditions. Controls are simple and positioned much like those in a car for easy handling. This new truck has standard ITA "shaft-type" fork mounting which permits using a wide range of attachments.

Outside turning radius: 100 in.

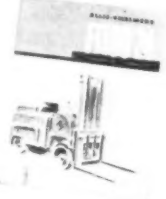
Over-all height: 83 in.; stacking height: 110 in. with standard mast

Width: 52 in.; length (less forks): 107½ in.

Power steering and power shift transmission are available as extra equipment.

Rugged industrial-type frame. Welded construction assures complete alignment of parts for reduced maintenance and longer truck life. New roller-mounted "extra lift" mast provides up to 19 percent higher lift without increasing the over-all lowered height.

The FT-100 has quality construction and functional design that includes unusual accessibility for service and maintenance. Let your Allis-Chalmers material handling dealer tell you more about this 10,000-lb lift truck that's *right for the job.* Send for Bulletin BU-334A.



ALLIS-CHALMERS, MATERIAL HANDLING DEPT., BUDA DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

BH-53

GET A

BETTER RECOVERY

...of manganese with MANTEMP ferromanganese

This new exothermic manganese alloy allows open hearth melters to make higher additions of manganese to the ladle (up to 1.5% manganese). Thus you get:

- 10% to 15% higher recoveries of manganese.
- More consistent manganese recoveries with fewer missed heats.
- 15 to 20 minutes less furnace time for low-carbon heats.

The strong exothermic action of MANTEMP ferromanganese sharply reduces segregation of manganese within the ladle. In addition, its unique exothermic reaction allows higher and more consistent recoveries of aluminum when aluminum is added as an alloying element.

Your nearest ELECTROMET office will be glad to give you further information concerning the high and medium-carbon grades of MANTEMP exothermic ferromanganese. Write ELECTRO METALLURGICAL COMPANY, Division of Union Carbide Corporation, 30 E. 42nd St., New York 17, N.Y.

METALS DO MORE ALL THE TIME ...THANKS TO ALLOYS

Electromet
FERRO-ALLOYS AND METALS

UNION CARBIDE

The terms "Electromet", "Mantemp" and "Union Carbide" are trade-marks of Union Carbide Corporation.

Are You Getting What You Pay For?

When you pay for HIGH QUALITY high-carbon wire, you want to be sure you get it. You do, when it is supplied by Roebling.

It is unsurpassed in quality, consistently true to specifications, and absolutely uniform in gauge. Hundreds of manufacturers attest to this fact . . . the qualities that they *pay* for—they *get* in Roebling high-carbon wire. The length of our relationship with customers proves it.

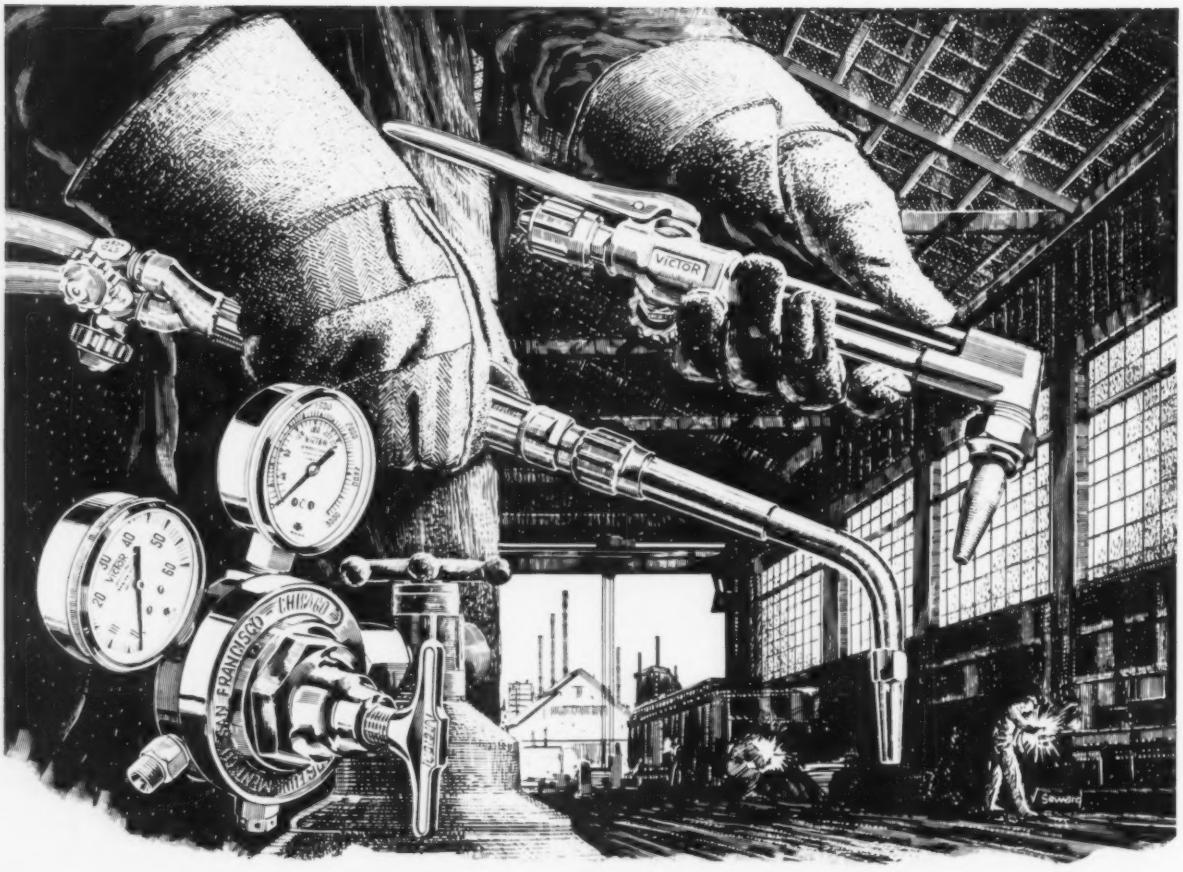
We'll be glad to show you what we mean. For information on superior high-carbon wire or cold rolled strip, write Wire and Cold Rolled Steel Products Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

This lightweight "No Charge" spool is typical of Roebling's modern packaging methods that save customers time and money.

ROEBLING

Branch Offices in Principal Cities—Subsidiary of The Colorado Fuel and Iron Corporation

Roebling... Your Product is Better for it



the most flexible tools in the metal working industry

VICTOR COMBINATION WELDING & CUTTING UNITS

FOR EASE OF HANDLING DIFFERENT JOBS . . . Welding, brazing, hardfacing, heating, heat treating, descaling and paint burning. Cutting, trimming, deseaming and weld scarfing.

WITH A WIDE VARIETY OF NOZZLES, TIPS AND CUTTING ATTACHMENTS, with quick-change, hand-tight, time tested sealing ring connections.

RELIABLE FIELD-PROVED REGULATOR DESIGN for safe, dependable pressure and flow control.

See for yourself how easy it is to handle your work when you use Victor equipment. Ask your Victor dealer for literature or a demonstration.

VICTOR for welding

VICTOR EQUIPMENT COMPANY

Mfrs. of welding & cutting equipment; hardfacing rods, blasting nozzles; cobalt & tungsten castings; straightline and shape cutting machines.

844 Folsom St., San Francisco 7 • 3821 Santa Fe Avenue, Los Angeles 58

W. L. Rye, appointed plant manager, Cincinnati Gear Co., Cincinnati, O.

T. J. Coleman, appointed vice president, Union Carbide Development Co.

J. H. Fooshee, appointed executive vice president and **J. G. Fox, Jr.,** as vice president, General Chemical Div., Allied Chemical & Dye Corp.

E. L. Kries, appointed treasurer, Metal & Thermit Corp., New York.

L. A. Edwards, appointed sales manager, Cincinnati Gear Co., Cincinnati, O.

J. M. Gebel, appointed manager, Detroit office, The R. K. LeBlond Machine Tool Co.

W. T. Holmes, appointed director, engineering, Alectra Div., Consolidated Electrodynamics Corp., Pasadena, Calif.; **R. K. Stephens,** appointed director, manufacturing.

Dr. J. M. Gaines, appointed associate technical director, Linde Co.

F. A. Depweg, appointed manager, Special Products Sales Dept., Hamilton Div., Baldwin - Lima - Hamilton Corp.

G. R. Ziegler, appointed general superintendent, Chicago Heights, Ill., plant, Inland Steel Co.

C. F. Henzelman, promoted to asst. superintendent, Hot Metals Div., Granite City Steel Co.

R. D. Schelleng, appointed supervisor, ferrous castings section, International Nickel Co.'s Research Laboratory, Bayonne, N. J.

A. J. Lucas, appointed chief engineer, methods, tooling, purchasing and engineering, Cincinnati Gear Co., Cincinnati, O.

I. C. Sengenberger, appointed manager, Cyclone Fence operations, American Steel & Wire Div., U. S. Steel Corp., N. Chicago, Ill.

G. J. Siener, appointed asst. to superintendent, mechanical maintenance, Buffalo plant, Republic Steel Corp.

C. Y. Cain, named administrative asst. to the general sales manager, Durez Plastics Div., Hooker Electrochemical Co., North Tonawanda, N. Y.

R. K. Collins, appointed South Pacific district aviation manager, Westinghouse Electric Corp., Los Angeles.

James Bere, named president, Axelson Mfg. Co., Los Angeles.

P. P. Suiter, appointed Chicago regional manager, Lamson Corp., Syracuse, N. Y.

Norman Roberson, appointed production manager, Pacific Coast Engineering Co., Alameda, Calif.

A. C. Shafer, appointed general sales manager, Benchmaster Mfg. Co., Gardena, Calif.

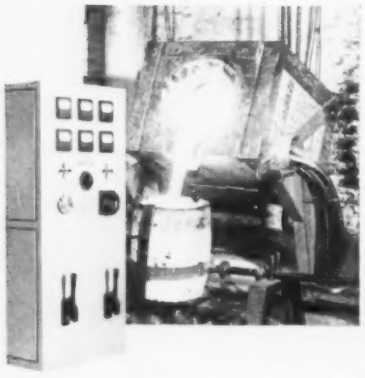
H. J. McMahon, appointed asst. to the general manager, Yorkville, O., Works, Wheeling Steel Corp.; **J. R. McCleery,** promoted to asst.

IT TAKES MODERN

INDUCTO

FURNACES AND CONTROL

TO PACE TODAY'S CASTING PRODUCTION



As surely as castings begin at the furnace, modern casting production begins with Inducto metal melting equipment. Every day, more and more foundrymen are learning to appreciate the way Inducto has combined progressive design features with the well-known advantages of induction melting.

Inducto engineers are alert to the modern casting requirements of higher production, competitive prices, consistent quality and economical operation and have taken positive steps to meet these present-day demands.

Check these features which have made Inducto equipment the leader in the metal melting field:

- Sturdy welded frame construction minimizes distortion . . . increases lining life.
- Compact, precision control saves floor space and gives highly-accurate, stepless control through all heating cycles.
- Water-cooled leads introduced through trunnion, the area of least movement, reduce flexing . . . ensure longer life. Leads are also shorter, cutting power losses.
- Controls designed for simplicity of operation and accessibility of selector switches.
- Lower installation costs with no furnace pits to dig, control panel shipped totally assembled and minimum floor space required.

Send today for Bulletin 70.

INDUCTOTHERM CORPORATION

412 Illinois Ave.
Delanco, N. J.

to the general manager, Martins Ferry Factory; **A. W. Haning,** appointed personnel supervisor, Martins Ferry Factory.

E. W. Lundy, appointed general sales manager, Peerless Pump Div., Food Machinery & Chemical Corp., Los Angeles and Indianapolis.

Ray St. Onge, appointed product manager, instruments, Process Instruments Div., Beckman Instruments, Inc., Fullerton, Calif.

J. C. Laegeler, appointed chief engineer, The Frank G. Hough Co., Libertyville, Ill.

Benjamin Torrison, appointed superintendent, Production Control Dept., Allis-Chalmers Terre Haute Works.

V. J. Kropf, appointed sales manager, Atomic Fuel Dept., Westinghouse Electric Corp., Cheswick, Pa.

J. A. Scanlon, appointed acting product manager, Agricultural Sales Div., Crucible Steel Co. of America, Pittsburgh.

J. C. Chapin, appointed general sales manager, Darco Industries, El Segundo, Calif.

R. J. McCarthy, named central states manager, industrial and distributor sales, Central Screw Co., Chicago.

W. R. Tise, appointed Western belting engineer, Conveyor & Elevator Belting Dept., U. S. Rubber Co.

R. K. Hoffman, named vice president, Acme Precision Products, Inc., Dayton, O.

J. J. Bacsik, named service manager, Acme Industries, Inc., Jackson, Mich.

E. W. Reid, appointed sales representative, Wright Hoist Div., American Chain & Cable Co., Inc., York, Pa.

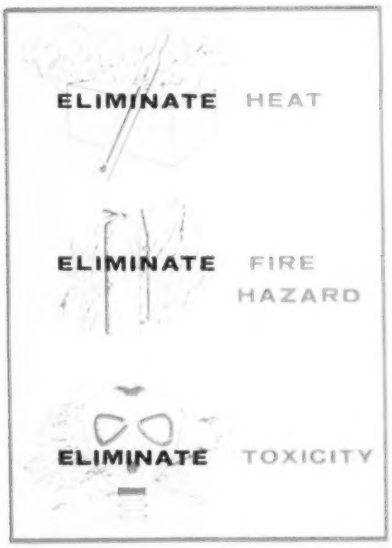
Lawrence Abbott, appointed West Coast sales engineer, Engelberg Huller Co.

J. P. DeLaney, elected vice president, Transportation and Spring & Forge Divisions, Alco Products Inc.

H. H. Wunderlich, elected vice president, Jones & Laughlin Steel Corp.

A. F. Duttweiler, Jr., named plant manager, Universal-Die Casting Div., Hoover Ball & Bearing Co.; Saline, Mich.; **Eugene Carpen-**

CLEAN AS A WHISTLE—with HOUGHTON Cold Cleaners



HOUGHTO-CLEAN COLD CLEANERS

. . . products of

The first job of a cleaner is to CLEAN. And that's where the new Houghton Cold Cleaners won the approval of production men. Working at room temperature in either still tank or power washers, Houghton Cold Cleaners do a better, quicker, more thorough job at less cost. And they also offer many other advantages.

Cold cleaners eliminate the need for expensive water heating equipment and high fuel costs.

Because they spray on, drip off, and carry all manner of oil and soil with them, they cut cleaning time.

Because shops stay cooler and parts handle more comfortably, morale is high. Production holds up all the year round.

Find out how Houghton Cold Cleaners can add "extras" to your profit picture. Call the Houghton Man or write direct to E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Pa.

E. F. HOUGHTON & CO.

PHILADELPHIA • CHICAGO • DETROIT • SAN FRANCISCO

Ready to give you on-the-job service . . .

teir, appointed chief engineer, Hoover Die Casting Div., Ann Arbor, Mich.; **Howard Russ,** named director of purchases, all Die Casting Divisions.

Sidney Brill, appointed credit manager, Whitehead Metal Products Co., Inc.

C. E. Huddleston, appointed director, engineering, Lewis Welding & Engineering Corp.; Cleveland.

H. F. Banzhaf, appointed asst. to the general manager, General Products Div., Allis-Chalmers Mfg. Co.; **H. W. Cory,** appointed asst. manager, Control Dept.; **W. F. Eagan,** appointed engineer-in-charge, control engineering.

N. J. Schaffer, appointed works manager, Forging & Screw Machine Div., Scovill Mfg. Co., Waterbury, Conn.

R. A. Petersen, appointed manager, Birmingham, Ala., district office, Pangborn Corp., Hagerstown, Md.

George Morton, appointed general manager, operations, Pressed Metals of America, Inc., Port Huron, Mich.

E. D. Hoyt, appointed Cleveland regional manager, Lamson Corp., Syracuse, New York.

Wudi Dreifuss, appointed to the purchasing and administrative staff, Nonferrous Div., Tube City Iron & Metal Co., Glassport, Pa.

D. M. McDowell, named manager, engineering, Le Roi Div., Westinghouse Air Brake Co., Milwaukee.

S. H. Stoner, appointed general manager, New Departure Div. of General Motors.

M. B. Keady, joins the Marketing Research Div. in the Sales Dept., Electro Metallurgical Co.

J. F. Eaton, appointed sales manager, Industrial Equipment Div. and Semi-conductor Products Div., United States Dynamics Corp.

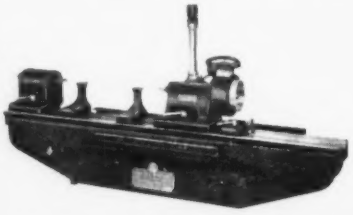
Warren Fraser, appointed sales representative, Beardsley & Piper Div., Pettibone Mulliken Corp.

B. D. Jones, named technical director, Aircraft Div., Standard Pressed Steel Co., Jenkintown, Pa.

Following appointments are within the Yale lock and hardware division of The Yale & Towne Mfg.

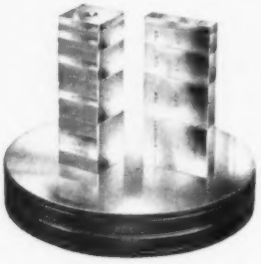
(Advertisement)

Basic Equipment for Higher Precision

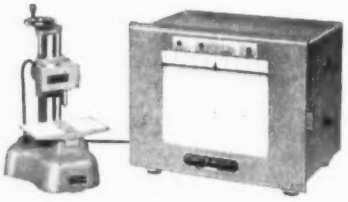


P & W STANDARD MEASURING MACHINE

. . . is used throughout industry to measure gages, tools and finished products for diameter, length, roundness, straightness, parallelism and taper direct to .00001" with controlled measuring pressure.

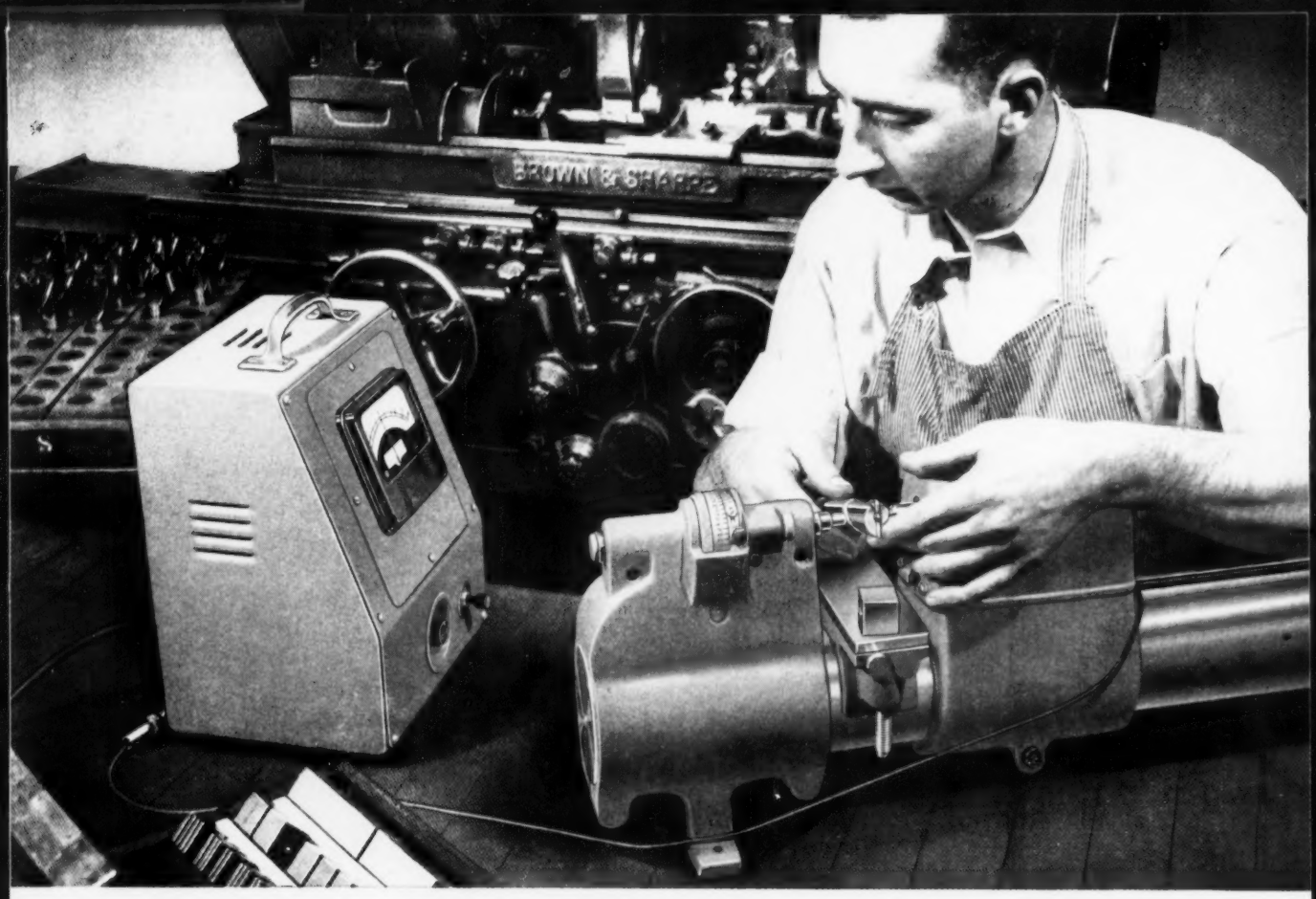


P & W PRECISION GAGE BLOCKS . . . are the basic standards of precision in thousands of plants. Guaranteed for size, parallelism and flatness within a few millionths of an inch. HOKE Blocks (square type) and USA Blocks (rectangular type) are available in steel or solid carbide.



P & W ELECTROLIMIT MILLIONTH COMPARATOR

. . . was developed by Pratt & Whitney for checking Precision Gage Blocks to a millionth of an inch. An essential item of basic measuring equipment for every plant that must establish and maintain truly high master standards of accuracy.



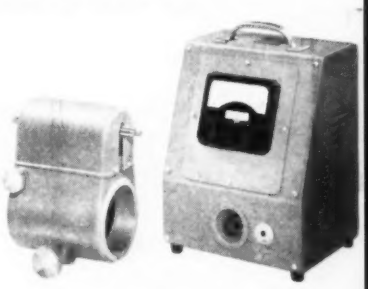
More Effective QUALITY CONTROL *for* HIGH PRECISION PRODUCTION

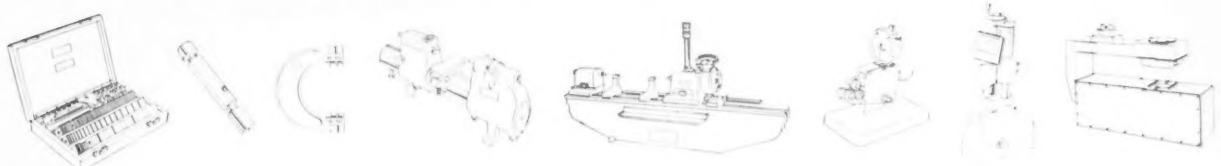
. . . BECAUSE THE *NEW* P & W *ELECTROLIMIT* SUPERMICROMETER IS *EASIER* TO READ *MORE ACCURATELY!*

Equipped with an Electrolimit Tailstock and a high magnification instrument cabinet, the operator can see *at a glance* exactly how much a part is over or under the required dimension. When used as a comparator, deviations are read directly to .00002" on the meter, which has a full scale of .001". The Supermicrometer is now an even more effective means of eliminating errors and reducing scrap losses from high-precision work. Particularly useful for process and final inspection, the Electrolimit "Supermike" is also ideal for use at the machine on lapping, fine grinding and other precision work.

CONVERT YOUR OWN SUPERMICROMETER . . . to an Electrolimit type with packaged unit shown here. Conversion is simply a matter of replacing the old tailstock with the new Electrolimit type.

Write now for complete information about the new P & W Electrolimit Supermicrometer or the Electrolimit Conversion Package. Pratt & Whitney Company, Incorporated, 10 Charter Oak Boulevard, West Hartford, Conn.





GAGE BLOCKS . . . CONVENTIONAL GAGES . . . SUPERMICROMETERS . . . STANDARD MEASURING MACHINES . . . COMPARATORS . . . AUTOMATION AND CONTINUOUS GAGES

PRATT & WHITNEY

FIRST CHOICE FOR ACCURACY

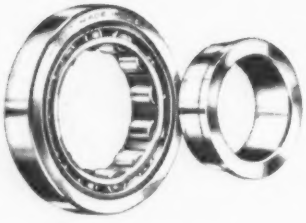
MACHINE TOOLS • GAGES • CUTTING TOOLS

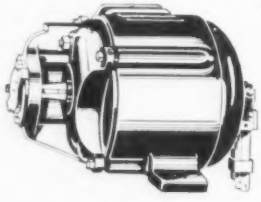
There's a HYATT HY-ROLL for every speed–

LOW

Industrial Inch Series
For speeds up to 600 rpm

Specifically designed for slow-moving, heavily loaded machinery where large diameter shafts are the rule. Available in fractional size bores for shafts from 4 inch diameter upwards.





MEDIUM

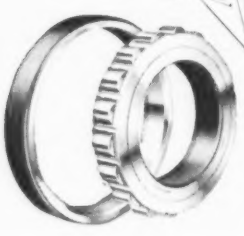
Hy-Load Series
For speeds up to 5,000 rpm

High-capacity cylindrical roller bearings for heavy radial loads and light or intermittent thrust loads. Available in a complete range of sizes and types.

HIGH

Aircraft Series
For speeds up to 50,000 rpm

Ultra-high-speed cylindrical roller bearings for jet engines and similar applications where rpm's are extremely high. Available in over 100 sizes and types.



If you would like the technical assistance of an experienced sales engineer, phone or write Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey; Pittsburgh; Chicago; Detroit; Oakland, California.

FOR REPLACEMENT BEARINGS, SEE YOUR HYATT INDUSTRIAL BEARINGS DISTRIBUTOR

GM GENERAL MOTORS

HYATT HY-ROLL BEARINGS

FOR MODERN INDUSTRY

Co. **J. J. Gall,** named asst. to the division general manager, manufacturing; **G. E. Eike,** named production manager; **J. M. Wilensky,** named director of purchasing.

H. H. Hildreth, promoted to manager, strip sales, Washington Steel Corp., Washington, Pa.

J. M. Haning, promoted to manager, home office sales, Washington Steel Corp., Washington, Pa.

OBITUARIES

F. J. Boehm, 67, founder and president, Standard Tube Sales Corp.

G. B. Cunningham, retired purchasing agent, G. F. Wright Steel & Wire Co.

W. H. Bowes, 75, founder and retired chairman of the board, Pitney-Bowes, Inc.

O. J. Neslage, 64, vice president, commercial sales, Joy Mfg. Co.

Blueprint of Chicagoland Economic Opportunities

What industrial plant sites are available in Chicago and Chicago Heights? Where are they located in respect to transportation, shipping and other facilities? What materials are plentiful? What is the labor situation? What about housing —and schools?

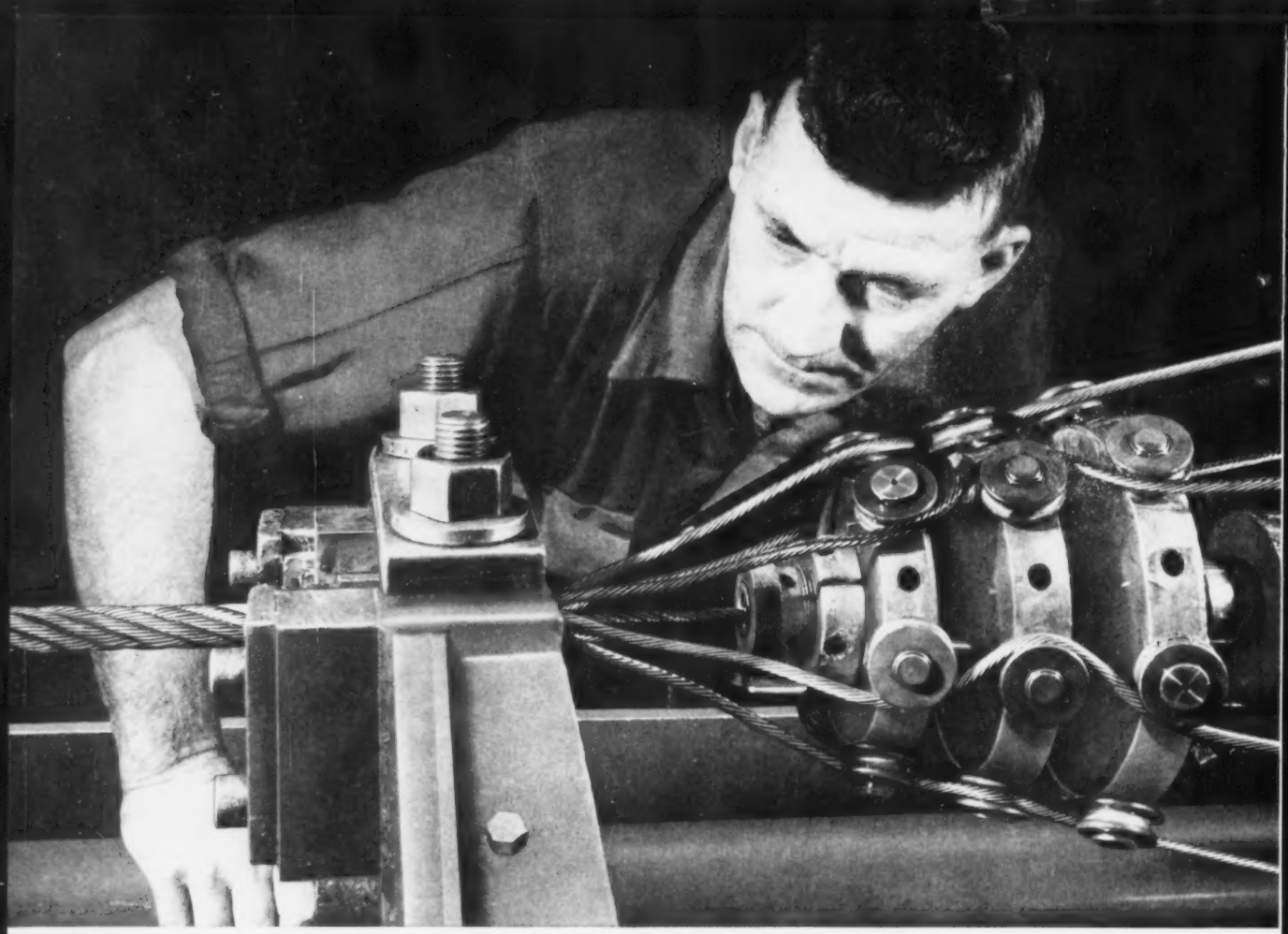
This new book, "Chicago & Chicago Heights Industrial Economic Blueprint," has been published to answer these questions and many more. With maps, diagrams, charts, photographs and text, it gives you a detailed analysis of the area and its physical characteristics. Here are easy-to-grasp facts about population, labor force, raw materials, transportation, utility and business services. The significant figures covering some eighty-service classifications of manufacturing industries are tabulated for quick reference.

The amount of detail work that went into the preparation of these reports is truly amazing. In all the years in which we have been engaged in plant location work we have never seen so much data collected on a particular area."—from a letter describing previous economic studies by Chicago & Eastern Illinois Railroad.

Available without charge. For a complimentary copy of "Chicago & Chicago Heights Industrial Economic Blueprint," write Mr. H. Sampson, Vice-President, Chicago & Eastern Illinois Railroad, 332 South Michigan Avenue, Chicago 4, Illinois.

C&EI

Chicago & Eastern Illinois Railroad



At the closing die on a wire rope closing machine, strands are pre-formed by rolls into the shape they will have in the finished rope. In the operation at right, strands are closed into finished rope.

Pittsburgh Steel Does A Job . . .

Where Wire Takes A Beating

Quality of Pittsburgh Wire in Rochester Ropes Protects Lives

Wire rope manufacturers just don't take chances on quality.

They can't afford to because their ropes have such vital jobs as protecting human lives and withstanding corrosive sea water for long periods.

The wire rope manufacturing process itself requires a wire of superior strength. Look at the photo above. Imagine the machine pictured is revolving at high speed as it preforms wire strands to a helical shape before the strands enter the closing die. In this process uniformity in the wire is essential to accurate preforming.

All requirements of rope makers for wire are exacting. You can be sure a wire mill which consistently meets those requirements is a good bet to produce other types of wire of high quality.

Go into the plant of one quality-conscious wire rope manufacturer—Rochester Ropes, Inc., of Culpeper, Va.—and you will see these requirements being met by wire from Pittsburgh Steel Co.

Even before manufacturing starts, Rochester Ropes, Inc., tests every coil of incoming wire to make sure the finished rope will give long service on tough jobs. Here's what the tests measure:

- **Torsion strength** which gives wire the ability to take repeated twisting action, both on the rope-making machines and in service.
- **Freedom from seams, inclusions and varying degrees of hardness** assures the wire rope user that no individual wires in the rope are likely to break under sudden or heavy strains.
- **Tensile strength** gives wire its work-horse qualities. The basic strength of wire rope comes from its tensile strength, the wire's ability to pick up a heavy load and to last for years in the field.
- **Zinc coatings** are tested to make sure the covering of protective metal is uniform and adequately thick. Wrapping tests make sure zinc won't flake off when a hawser scrapes against a wharf or that it won't peel when twisted around a stanchion.
- **Toughness** shows up better in the field than in the laboratory. Toughness is the quality which results from proper grain structure, from uniform dimensions which as-

Every coil of rope wire shown here before rewinding on bobbins for use on stranding machines is carefully tested. In the background are stranding and closing machines in the Rochester Ropes' plant.

sure even wear on the rope and from the skill with which wires are twisted into strands and strands into finished rope.

Finished wire rope undergoes another series of tests which make certain every coil of rope leaving the Rochester plant will do the specific job for which it was built.

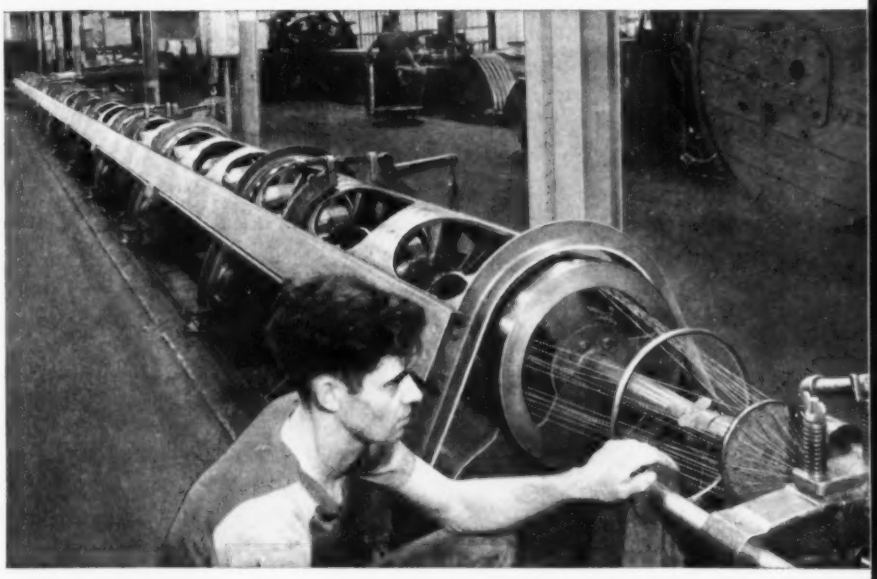
Pittsburgh Steel's rope wire, by making good in Rochester Ropes' laboratories, production machines and in the field, proves to all kinds of wire users that Pittsburgh Wire can be depended on for high, uniform quality.

"The quality of our wire rope starts with the wire we buy," said William L. Rochester, Jr., vice president in charge of sales at Rochester Ropes. "The quantity of rope wire we buy from Pittsburgh Steel speaks for the regard we have for its wire."

Whether you use oil tempered spring wire, aircraft wire, brush wire or any other kind of manufacturers' wire, you can enjoy the advantages that are built into rope wire.

Pittsburgh Steel wire will help you make a better product, lower operating costs and provide greater customer satisfaction.

Investigate these opportunities today. A telephone call to any of the district offices listed at right will bring skilled engineering help to you immediately.



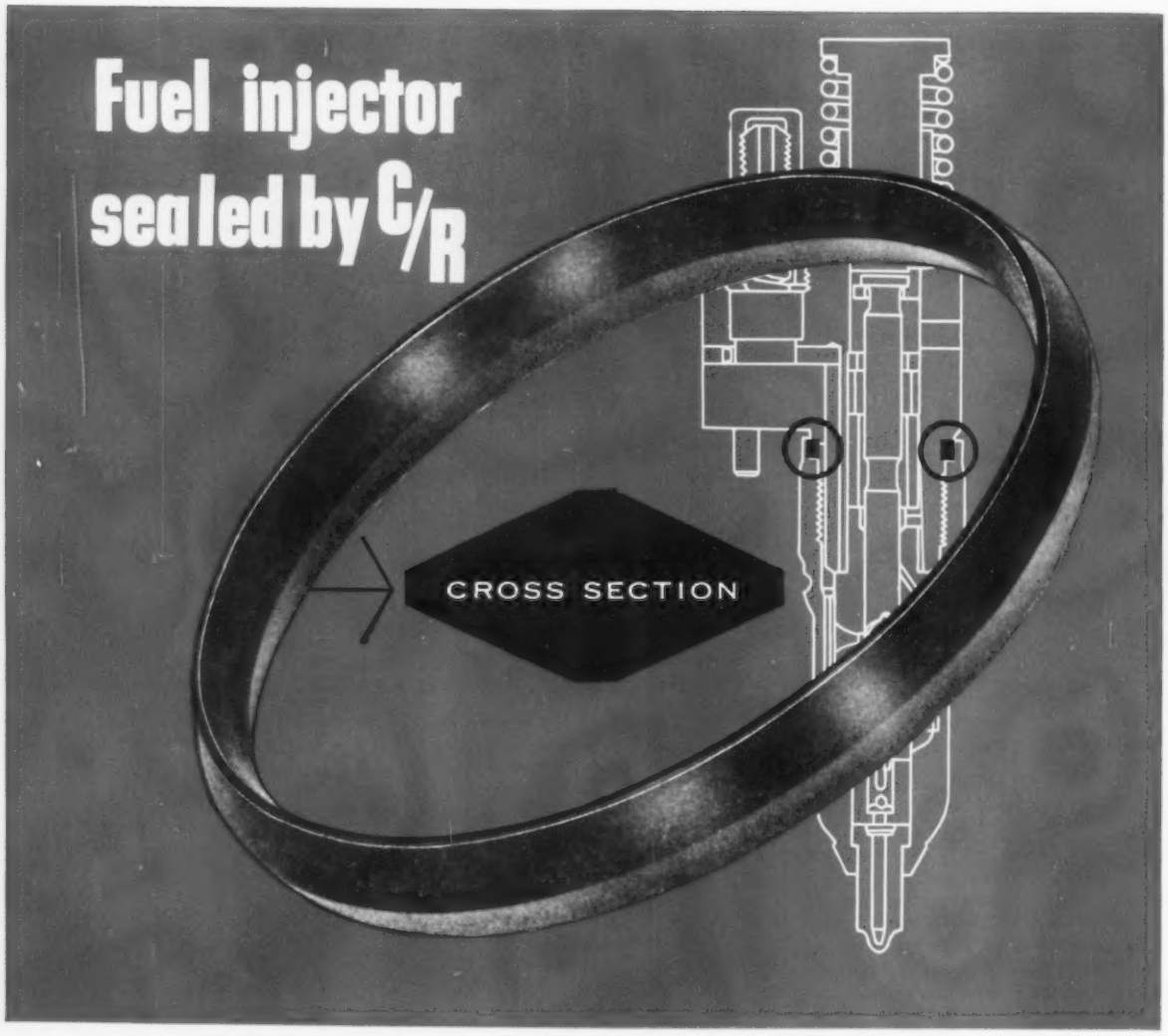
Forty-one bobbins pay off wire on this 120-foot long stranding machine in the Culpeper, Va. plant of Rochester Ropes, Inc.

Pittsburgh Steel Company

Grant Building • Pittsburgh 30, Pa.

District Sales Offices

Atlanta	Cleveland	Dayton	Los Angeles	Pittsburgh
Chicago	Dallas	Detroit	New York	Tulsa
		Houston	Philadelphia	Warren, Ohio



ELIMINATES INJECTION NOZZLE LEAKS

Crankcase dilution can be a big headache. But not for one of the leading Diesel manufacturers. They knew that the right injection nozzle seal would cure a major cause . . . and came to C R Sirvene engineers for help. C R manufactured this Sirvene (synthetic rubber) part to extremely critical dimensions and physical properties to match the equally precise dimensions of the assembly. Result: no more leakage. When you need a pliable mechanical part compounded to meet critical specifications of heat, pressure, abrasion resistance and molded to the most exacting tolerances, you need C R Sirvene. C R Sirvene engineers will gladly cooperate with you in all phases of your sealing problem . . . from design, compounding of the correct oil-resistant elastomers, through laboratory-like control of production quantities. Write for your copy of the new booklet, "Sirvene."

SIRVENE C/R DIVISION
CHICAGO RAWHIDE

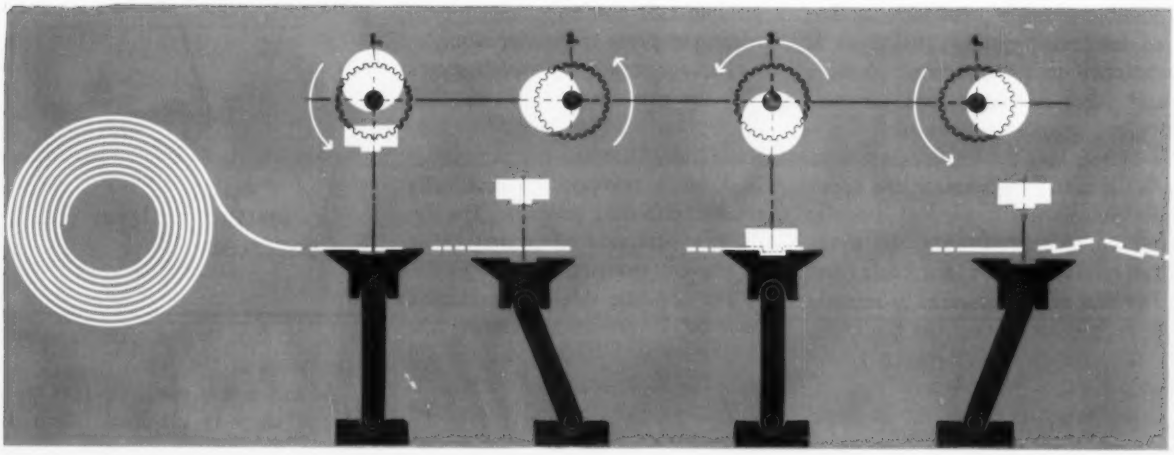
CHICAGO RAWHIDE MANUFACTURING COMPANY
1219 Elston Avenue, Chicago 22, Illinois

Offices in 55 principal cities. See your telephone book.

In Canada: Manufactured and Distributed by Chicago Rawhide Mfg. Co. of Canada, Ltd., Hamilton, Ontario

Export Sales: Geon International Corp., Great Neck, New York

Other C/R Products
C/R Shaft and End Face Seals • Sirvis-Conpor mechanical leather cups, packings, boots • C/R Non-metallic Gears



KEY INGREDIENT: "Flying Press" operates on-the-go while dies and strip are in continuous motion. Sketch 1 shows positions at top of stroke; in 2, upper platen is moving down, lower bed moves forward; sketch 3 is bottom of stroke; and in 4, upper platen moves upward and lower bed starts back.

Continuous Press Line Marks Big Advance in Forming

By W. G. Patton—Engineering Editor

Here's the first account of an important breakthrough — a completely uninterrupted line that combines press forming with tube making, welding, and a flying cutoff.

It's made possible by a new stamping press that operates on-the-fly as strip feeds through continuously.

▪ Most major metalworking operations have been integrated into automatic or continuous lines. Stamping was a notable exception. But now, a joint project conducted by several equipment makers and GM's Fisher Body Div. proves it, too, can be joined with other machines in a continuous, strip-fed line.

In a pilot line at Fisher Body's Grand Blanc, Mich., plant, steel flows in a continuous strip from the coil stand through press and roll forming, welding, and a flying cutoff. It does so without interruption anywhere along the line—stop-and-go has been eliminated even at the piercing and press-forming stage.

The experimental setup has been operating for several months at Grand Blanc, making automobile seat-bottom frames. Studies are now under way to determine how techniques developed on the new line can be applied to building auto bodies.

Potential advantages of the continuous forming line are impressive:

For some applications, press speeds may be doubled or even tripled.

Production per square foot of floor space is increased substantially.

A number of handling steps can be eliminated on a wide range of press operations.

Volume of materials in process can be cut sharply.

New Press Is Key—The line is

built around a new press developed by Wean Equipment Corp., Cleveland. Operating on somewhat the same principle as the flying shear, the new "Flying Press" makes it possible to bring press forming into an integrated setup. The press is stationed so that piercing, forming and other die operations are performed prior to roll forming.

Here's how the new press works: As the crankshafts rotate, the upper die moves in a vertical circular motion. Simultaneously, the lower die oscillates in a harmonic arc. The dies remain parallel in relation to each other throughout the cycle.

The punching or forming action occurs at a point where the circular motion of the upper die meets the arc of the lower die.

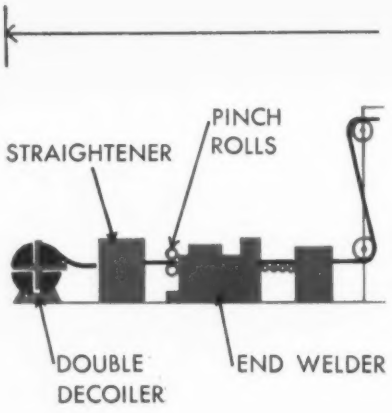
The Wean press has no clutch, brake or flywheel, eliminating these as maintenance points. It rests on a separate foundation and is mounted on an absorbent material, Fabrica. There is so little vibration that a coin standing on edge stays upright.

Two Sets of Controls—The press is provided with both manual and automatic controls, all built into a single panel. The controls are such that, if cobble should occur, the lower bed drops automatically. This opens the feed rolls and stops the motor. Strip feed is micro-adjustable and can be changed even while the press is in operation.

The accompanying sketch shows how the new line is laid out. Coil stock about 8 in. wide and weighing from 2500 to 3000 lbs per coil is held on a two-position, manually rotated, decoiling pedestal. The decoiler is equipped with a drag brake to prevent overrun.

The opposite side of the decoiler pedestal is pre-loaded during the operating cycle so that another coil is available by merely rotating the coil holder 180 degrees. The holder is ball-bearing mounted, requires little manual effort, and correctly positions the new coil when it's needed.

Threads Through Entire Line—The first coil is threaded through the pinch rolls, end-welder, and up into a long overhead loop, then down to feed into the Wean press. Roll forming, continuous seam welding, shape forming, sweep forming and cut-off follow as the strip is led through the various operations of the line.



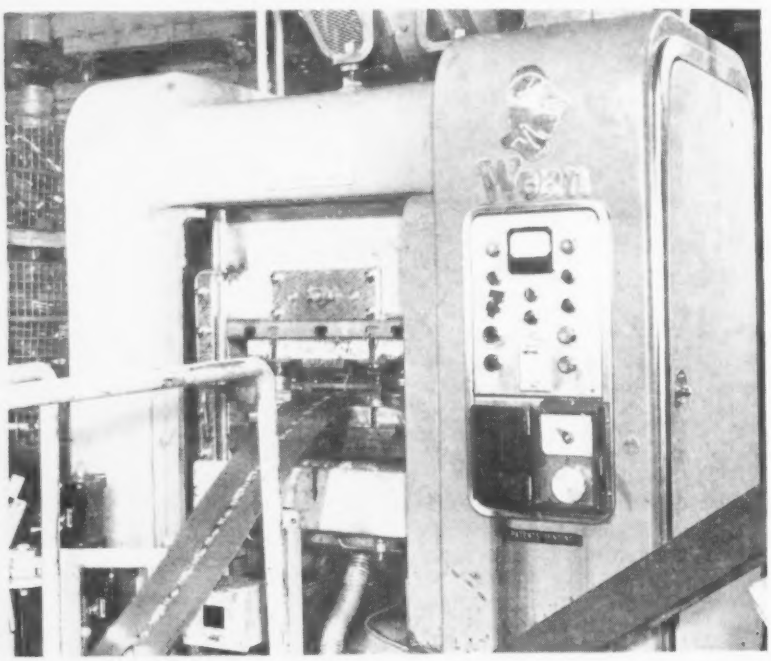
As this coil is used, the rear end of the strip is clamped, sheared square and held for welding in a special welder. Then the second coil is swung into position by rotating the decoiler. The front end of this coil is brought to the pinch rolls at the front of the welder. This strip is also clamped and sheared square. The two ends are now resistance welded with little or no upset of metal so that the weld joint can go through subsequent operations without scarfing.

During the time that the strip ends are clamped for welding, the press and roll operations have not been stopped. Steel is supplied from the overhead loop so that the operation can remain continuous.

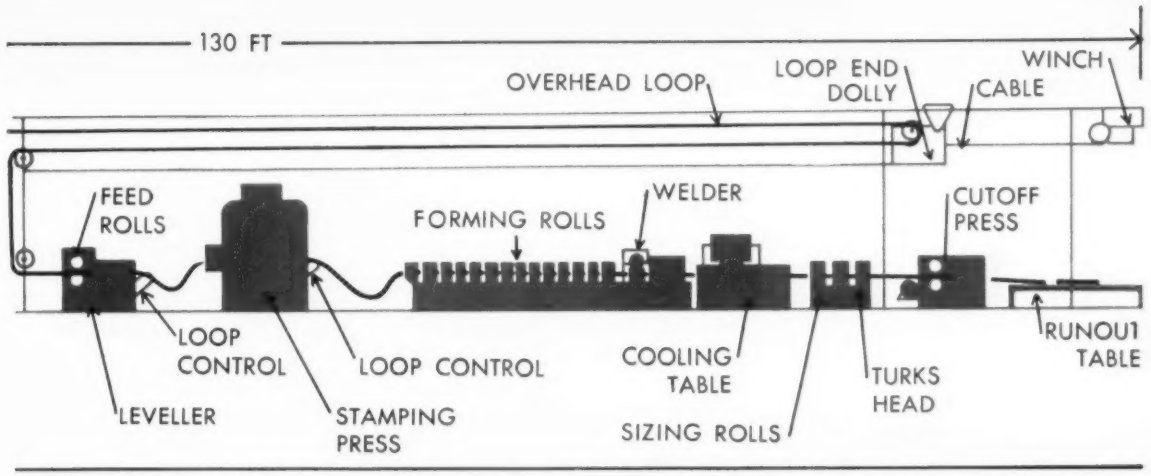
Automatic Supply—Steel in the loop is carried overhead in a bridge-type structure. The carrier roll is free to travel about 125 ft, automatically supplying as much as 250 ft of strip to the press and roll line while coil ends are being joined.

Steel coming from the overhead loop passes into a roller leveler to straighten and flatten the material and to feed a loop in front of the Wean press.

Loop control between the roller leveler and the Wean is accomplished by a group of three vertically positioned electric eyes. The bottom lights permit the overdrive to operate; the center lights maintain



ON-THE-FLY STAMPING: Compact new press will continuously perform six basic press operations. It uses standard dies.



NO INTERRUPTION: (above) Strip moves continuously through press forming, roll forming, welding, cutoff. Travel time is 5 minutes.

the loop; but if the top lights operate, steel feed cuts off immediately.

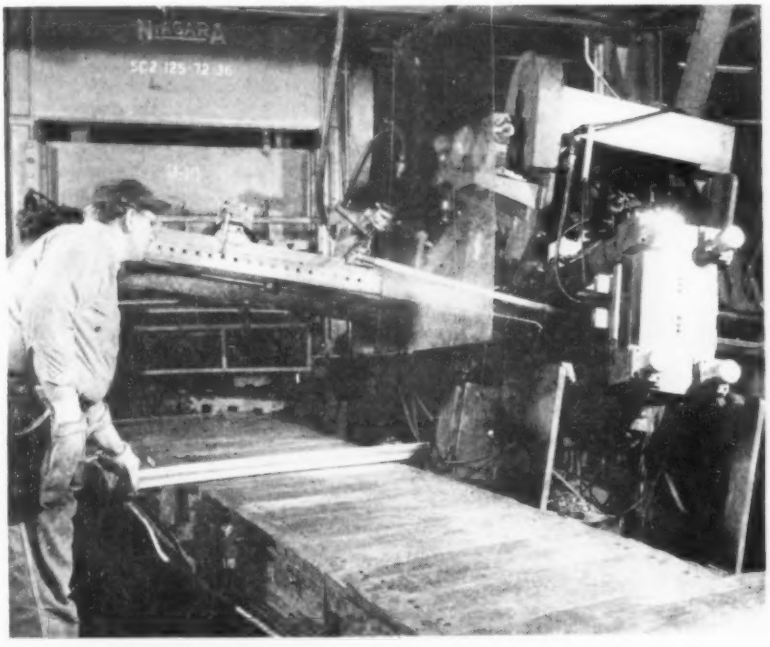
Uses Standard Dies—The steel strip enters the die in the Wean for typical progressive die operations of locate, lance, pierce, and form. The dies are standard, designed for conventional press operation, and their life is equal to or better than stop-and-go press operation.

Next, the strip enters the McKay tube-forming rolls. Edges of the moving steel are scarfed with a high-speed tool to assure accurate width and squareness, providing a good surface for seam welding.

A series of six roll-stands are required to form a rectangular tube shape. The rolls are designed to avoid distortion of the preformed strip. As this departs from conventional practice, extensive engineering and tryout were required to arrive at the proper roll sequence.

Final forming rolls leave an overcrowned edge-to-edge condition on the upper surface. These edges pass through and are continuously welded by a 150 kva roll seam welder.

Completed Tube — The welded tube is then liquid-cooled and passes through a four-stand roll operation for final flattening and sizing. At this point the continuous tube is correct in size, completely welded and with all press operations finished.



FLYING CUTOFF: Completed seat frames are cut to length as continuous tube leaves line. Final punching is on press in background.

If sweep or curvature is desired in the finished piece, it's added by a Turks head-forming unit. Here, two groups of four rolls each completely support the rolled section so that adjustment of roll position gives the desired sweep or contour.

The cut-off knife enters the tube in a flying-shear type of press operation. The cut-off die is trigger-actuated to move with the material, cut the tube and return to position for the next cycle. It completely clamps the tube so that collapsing and distortion are minimized.

The cut-off press has a 6-in. stroke and is mounted on a floating foundation to make it entirely flexible. The cut-off die can be rotated, tilted, raised or lowered.

Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., THE IRON AGE, Chestnut & 56th St., Philadelphia 39, Pa.

Vertical Expansion Raises Treatment Rate

By A. E. Uhleen—Executive Vice President, Enamelstrip Corp., Allentown, Pa.,
and E. A. Stockbower—Manager, Technical Standards Dept., American Chemical Paint Co., Ambler, Pa.

Many plants face expansion problems. It may be just one phase of production that needs boosting.

If so, you need careful planning to make it pay off. Does it mean new buildings, more floor space?

Not always. One company solved a space problem and uncovered better operating techniques to boot.

Limited overhead space didn't bar expansion. They simply built through the roof to install vertical equipment.

▪ The approach to increasing production is often bound by convention. You think of an in-line operation as expanding over more floor space. But, a little design ingenuity goes a long way in using existing space to best advantage.

One company, forced by limited floor space and increased production demand, took to the air. Enamelstrip Corp., Allentown, Pa. cleans and pre-treats metal strip in a new vertical sprayer.

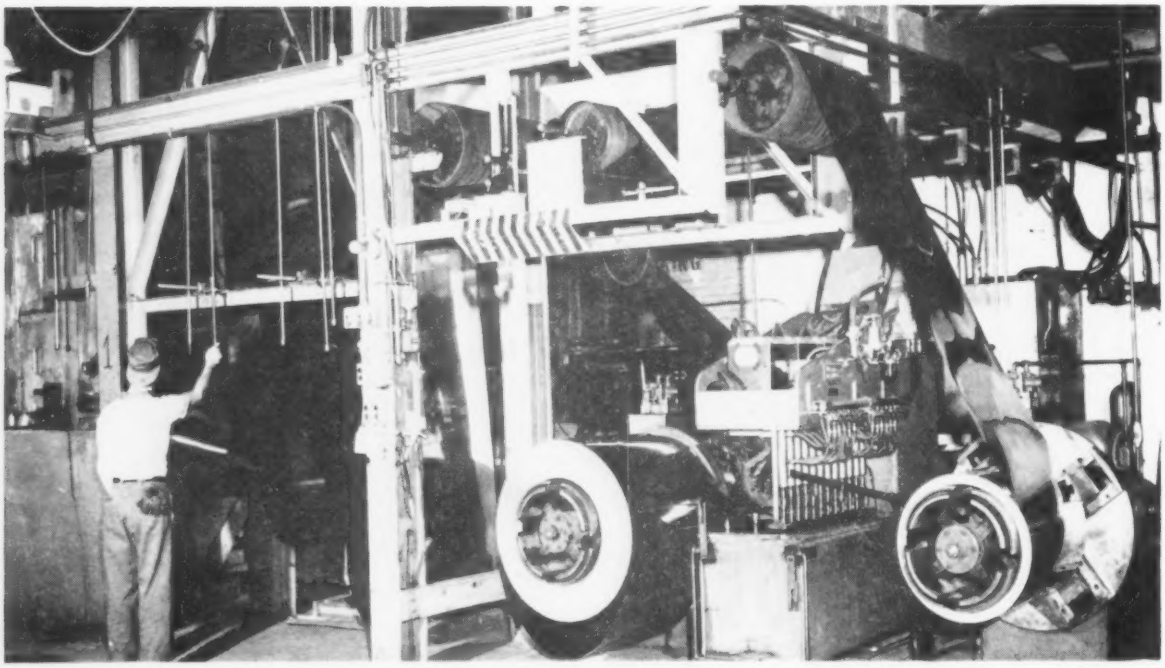
Without increasing floor space, the multi-stage power sprayer has increased the pre-treatment capacity at least eight times. The new unit occupies only 48 sq ft of floor area, but accommodates 280 lineal feet of festooned coils.

Surprise Gains — Although the original idea in vertical arrangement was to conserve floor space, the company found gains in better control over the process.

The metal coil stock, festooned between vertical pipes, gets sprayed on both sides. Each side receives the same amount of solution.

The solution hits the metal to flow at constant speed. As a result the contact time of cleaning and treating chemicals is controlled. Both sides of the strip get identical treatment.

By contrast, when the strip travels horizontally, the solution sprayed on the bottom tends to drip off, whereas that sprayed on top tends to lay for varying lengths



CHARGING END: You get continuous process in vertical power sprayer by welding end of old coil to new.

of time depending on slack in the strip.

Chemical Treatment—Using the various metal treating chemicals and processes of the American Chemical Paint Co., Ambler, Pa., Enamelstrip pretreats coiled stock to inhibit corrosion and provide a surface for improved paint adhesion. After pre-treatment, Enamelstrip coats and bakes the metal in continuous line and ships in coil form.

In effect, Enamelstrip does the painting for the metal fabricator, but does it with speed and economy possible with a continuous process. For example, the heat requirements for the entire pre-treatment system is less than 1,000,000 Btu per hr, or only 10-15% of the heat required when fabricator chemically treats the same area in formed products.

In the manufacture of Enamelstrip the cleaned and pre-treated metal is fed directly into the coater and baking oven. In designing the new sprayer, it was impractical to gain space by moving the large baking oven. For this reason the pre-treatment equipment was located at the beginning of the baking oven and metal coater.

Through The Roof—Measuring 12 ft long by 4 ft wide, the vertical sprayer fits with a few feet to spare for future addition of another drying chamber. In the 48-sq ft space, the sprayer can process up to 1500 sq ft of surface at a given time.

To get height, the company extended the 30-ft housing right up through the ceiling of the plant. Even though the capacity is now adequate, the roof of the housing is bolted to make way for further expansion.

Although the sprayer has a top coil speed of 400 fpm, the speed is set by the baking or drying time of finish used on the metal. This reduces speeds to as low as 60 fpm. But as faster baking enamels are developed, the machine has the speed to keep pace.

Steel baffles divide the treatment housing into compartments. Each compartment holds a loop of material with a spraypipe in the center of the loop and one on each side. The last compartment is further divided to permit drying.

HOUSING ADDS SPACE: The building of this housing on existing roof means expansion without adding floor space.

Five Stage Cleaning—The most common treatment used by Enamelstrip is a five stage process:

1. Clean metal surface.
2. Rinse.
3. Treat with Alodine (for aluminum) or Duridine (for steel).
4. Rinse.
5. Rinse with Deoxylite (final acidulated rinse).

To take full advantage of the many ACP chemical treatments for various base metals, the sprayer and housing is acid-proof throughout. Such parts as piping, pumps and shaft rollers are of stainless steel. Acid-proof paint protects sides of equipment, return tanks and baffles. This permits use of corrosive chemicals in any part of the equipment.

The reservoirs at the bottom of the equipment serve to collect solutions as they drip off the loops. The liquid gets immediately pumped to storage tanks outside the washer itself.

Changeover Fast — The entire system can be made ready for a new treatment in ten minutes or less. By turning valves, a new solution can be pumped into the spray pipes.

Since baking time governs the speed with which the strip moves, the amount of treatment cannot be regulated through speed. Instead the thickness of phosphate or chromate coating on the metal is controlled by changing the concentration of the solution.

The large spray area per unit length plus the flowing action lengthens the contact time. It permits use of a weaker solution to get the required coating.

The long contact time also permits heavier coatings than could otherwise be achieved. With the versatility of the sprayer, Enamelstrip and American Chemical Paint cooperate in developing new types of finishes. An example is in the Alodizing of aluminum strip in the sprayer to get colors.

Slugging Speeds Small-Lot Output of Precision Parts

If you're faced with small-lot production but the need to make parts fast, slugging may be the answer.

Automatic saws and chucking machines can be combined into a highly efficient operation that will turn out small numbers of precision parts quickly and economically.

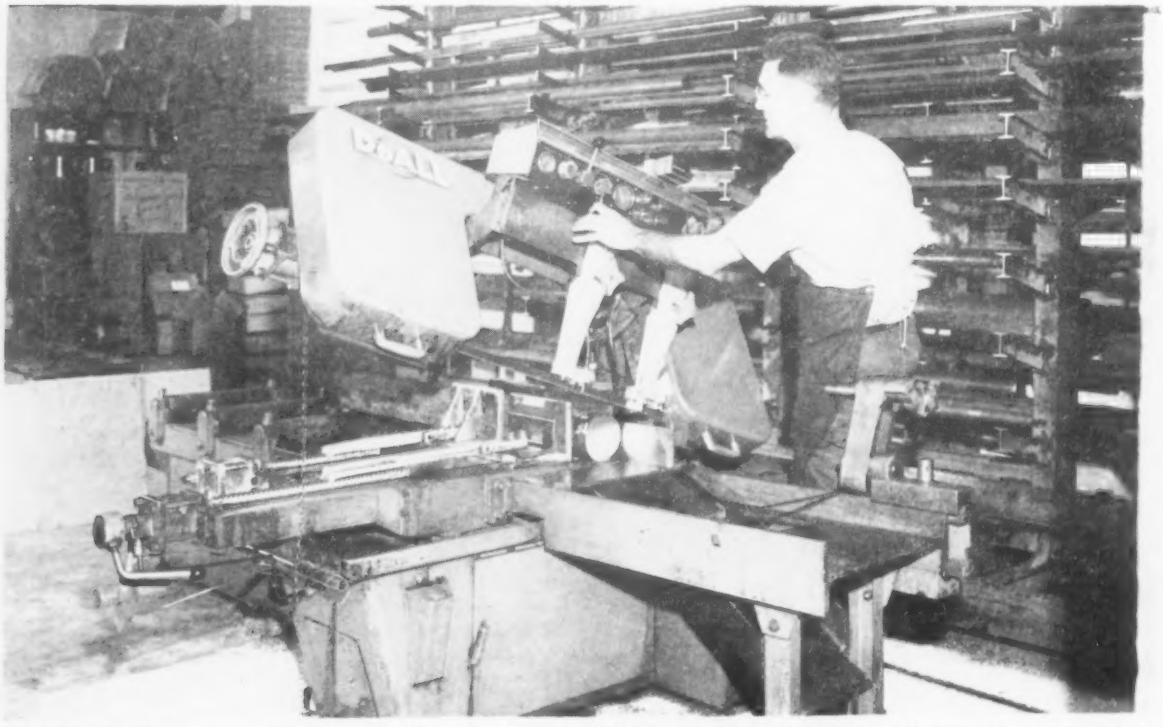
▪ Slugging—sawing solid bar stock into slugs for machining on automatic chuckers—is a fast and economical method of meeting small-lot production requirements. At Skidmore-Wilhelm Mfg. Co., Cleveland, for instance, one automatic power-saw keeps three single-spindle chucking machines supplied with slugs for precision instrument parts.

Skidmore-Wilhelm makes an impact-wrench calibrator for determining the tension induced in tightening high-strength bolts, as well as hand torque-wrench calibrators and a bolt-tension unit for industrial testing.

Components for these instruments must be manufactured to close tolerances. Many of the parts are highly stressed members and so must be made from heat-treated alloy steels.

The firm's earlier experience as a jobbing machine shop showed that automatics can pay off even for small-lot production. A multiple-spindle automatic bar machine would at first seem a logical choice. But since parts up to 7¼ in. diam are required for the calibration unit, a machine of this type is out of the question. A single-spindle automatic bar machine would work; but the long cut-off time required for alloy steel parts would slow production.

Saw, Then Machine — A combination of sawing and then machining on automatic chucking machines proved the best approach. One factor in its favor is that the labor rate for sawing is lower, and an experienced machinist is not



SLUGGER: Fully automatic saw keeps three chucking machines supplied with slugs. All controls are on panel.

required. Another is the fact that slugs are easier and cheaper to handle throughout the shop than long bars.

Slugs are cut on a DoALL model C-58 power saw. This machine keeps three automatic chuckers supplied with slugs, even though the saw is operated only on a one-shift basis. Teamed with Demon high-speed steel saw bands, the machine is used both on heat-treated alloy steel bar stock and soft cold-rolled steel.

A control panel located on the saw-head permits adjusting up or down motion, sawing or feeding pressure, blade speed, rate of coolant flow and selection of manual or automatic indexing. Blade speed is infinitely adjustable from 60 to 350 feet per minute. Pressure of the blade against the work is also adjustable. The sensitive hydraulic system automatically compensates this pressure to meet increased resistance.

Hydraulic Vises—Clamping and indexing of stock is accomplished automatically by means of two hydraulic vises. The front vise automatically clamps and unclamps the material in sequence with the indexing cycle performed by the vise at the rear. Size of slug cut is quickly adjustable by means of a pointer and calibrated scale provided on the base of the machine. Indexing tolerance is maintained at $\pm 1/64$ in. for lengths up to 24 in. Squareness of the cut in relation to the axis of the bar is held to ± 0.002 in. per inch of diameter.

In the interest of economy, blade speed is set for long life, not the fastest possible for the material being cut. The blade is operated at 150 fpm when sawing heat-treated alloy steel bars, and at 250 fpm for cold-rolled steel flat stock.

Slugs are cut from 5⅛ in. diam hardened steel bar in about three minutes each. After about 80 slugs have been cut from the heat-treated stock, the blade can still be used for as many as 1400 cold-rolled steel slugs before resharpening is required. Slugs 7¼ inches in diameter are cut from hardened bars in ten minutes.

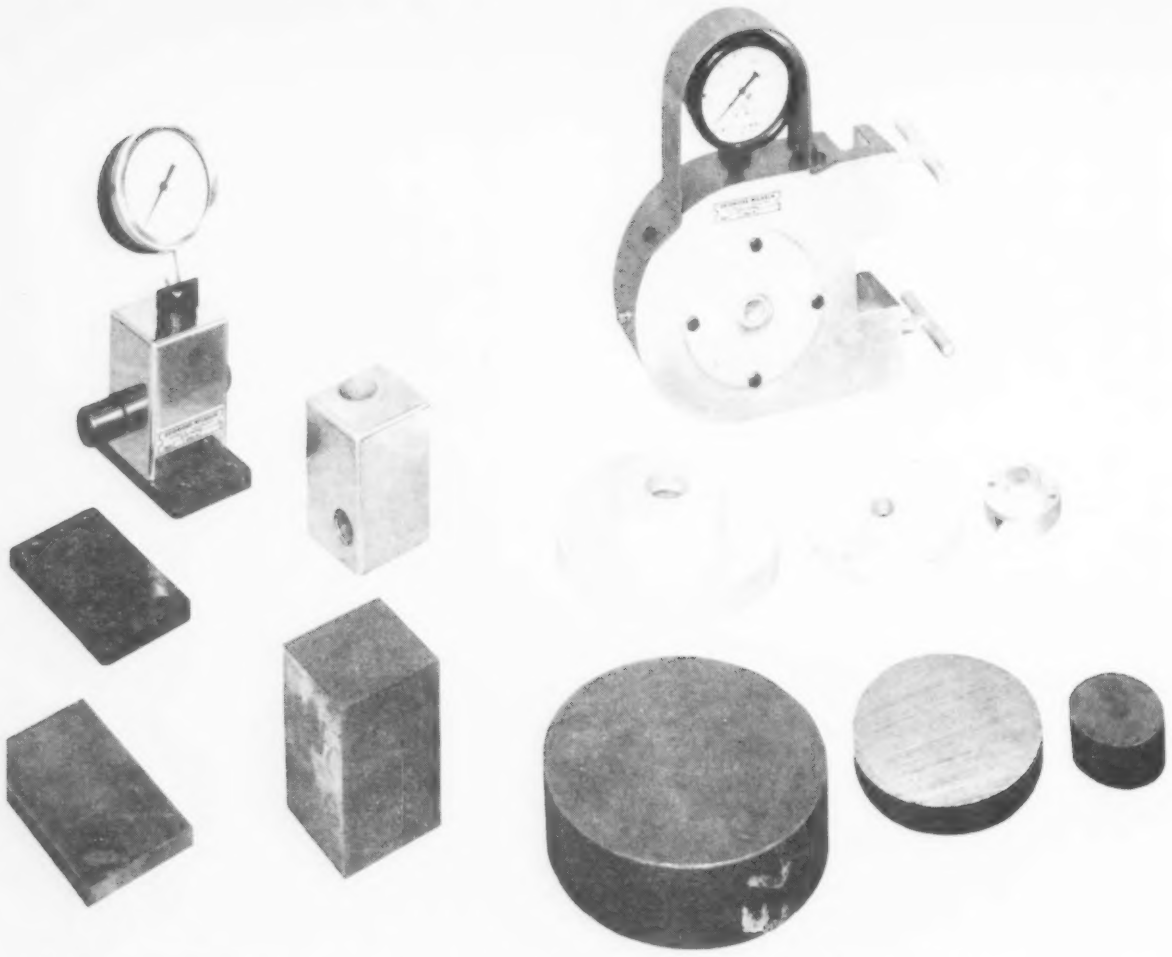
Fully Automatic—Smaller diameter bars and flat stock are cut in multiple, stacking the material together up to a maximum width and height of 12 in. Sawing and indexing are completely automatic. Once the power saw has been set up and started, the operator can perform other duties.

An all-purpose, sulphur-base water-soluble concentrate having good anti-weld properties is used as the cutting fluid to lubricate the saw band and dissipate heat.

Slugs are processed into precision parts on three Warner & Swasey single-spindle automatic chucking machines. They've been found economical even for runs under 100 parts, depending on complexity of the operations and the number of multiple cuts required. One man easily operates two automatics. While setup time on the automatic chuckers can be as much as 2½ times that of a turret lathe, most jobs are run in 30 to 40 pct less time.

A typical part being produced is an impact-wrench calibrator plate

CHUCKER SETUP: Single-spindle automatic chucking machines make a variety of parts from slugs.



START TO FINISH: Slugs in foreground are used to produce parts (center row) for hand torque-wrench calibrator (upper left) and bolt-tension calibrator (upper right).

machined from a 5⅛ in. diam slug. About 1/16 in. of stock is removed on both faces and the periphery.

Goes Fast—First, the slug is start-drilled with the work rotating at 251 rpm and the drill fed at a rate of 0.005 ipr. Then a ¾ in. diam drill is fed through the slug at a rate of 0.007 ipr, with the work speed reduced to 139 rpm.

Next, the work speed is again increased to 251 rpm, and the plate is faced, turned, chamfered, and bored with tools fed at 0.005 ipr. This completely automatic cycle—with all carbide tooling except the drills—is completed in four minutes. Then, the part is reversed in the chuck and the opposite side of the slug is turned, faced, and chamfered in a two-minute cycle.

Close tolerances are consistently maintained on the chucking machine. Speeds, feeds, and cutting stroke of the chucker are controlled by simply adjusting trip dogs on a pentagonal drum at the rear of the machine.

Versatile System—A wide variety of parts are produced in this way from several types of steel. All of the slugs for the bolt-tension calibrator are made from SAE 4150 alloy steel bar stock, heat-treated to a hardness of 28 to 32 Rockwell C prior to sawing. The largest part required for this calibrator is the piston, made from a slug 7¼ in. diam by 2⅛ in. thick. Another part made from a slug 5⅛ in. diam by ¾ in. thick is the adapter plate. The smallest part, a bushing, is made from a slug 2½ in. diam by 1¼ in. thick.

The hand torque-wrench calibrator is made from slugs sawed from cold-rolled and unhardened SAE 1020 flat stock. The body is 3 in. square by 4 in. long, while the baseplate is ½ in. thick by 3 in. wide and 5¼ in. long. The body is chromium-plated after machining.

Examples of these parts are shown in the photo above, which illustrates several major components for two calibrators made by Skidmore-Wilhelm. The hand torque-wrench calibrator is currently made in six sizes.

New Machine Doubles Cold Heading Output

Increased production sometimes can be brought about by stepping up the machine's speed. This often leads to increased maintenance and repair costs.

But here's a cold heading machine which doubles output by doubling its speed without increasing maintenance costs.

■ To boost your output of cold-headed parts, merely step up the speed of your cold-heading machine. It's as simple as that. Or is it? Increasing speed on a crank-type header makes the crankshaft move faster, all parts move faster. Here, wear and tear take their toll —and maintenance, repair and lubrication costs mount fast.

Doubling a cold-heading unit's production needn't mean twice the maintenance time and money, though. A recently developed machine is an example of this. The cold header, built by Waterbury Farrel Foundry & Machine Co., Waterbury, Conn., turns out small bolts, screws and rivets at twice the pace of its predecessors. Yet, its parts aren't subject to much additional wear.

Upsets Rapidly—Known as the Headmaster, the unit is a solid die double stroke setup. It heads from cold, unheated wire at speeds from 300 to 450 blanks per minute. That's plenty fast, but users consider it as just answering a normal demand for increased output rates. Naturally, they don't want maintenance and repair problems offsetting the benefits of upped production.

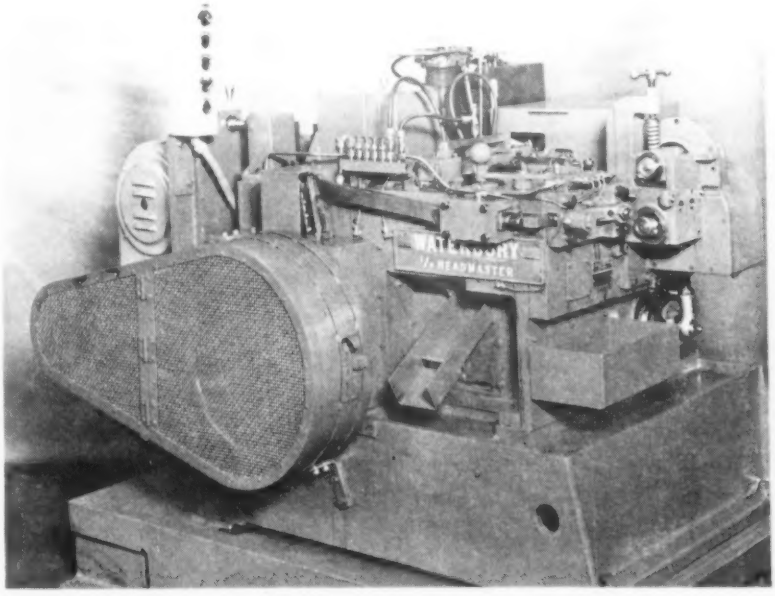
The key to the unit's success is this: The heading gate operates from the crankshaft through toggles. Its design permits making the two necessary heading blows in one revolution of the crankshaft. Thus, producing 450 blanks per minute requires a 450-rpm crankshaft speed. More conventional crank header design (i.e.: a crank connects the gate directly to the crankshaft) demands a 900-rpm crankshaft speed to turn out the same 450 blanks per minute. Of course, increasing the movement means more down-time for lubrication, service, etc.

Other Assets, Too—Toggle style construction offers two other noteworthy advantages. First it provides one long stroke and one short stroke. This lessens gate travel on the second stroke. The other asset is this: The gate advances rapidly; it then decelerates on contact with the blank. A squeezing action, rather than an abrupt blow, results.

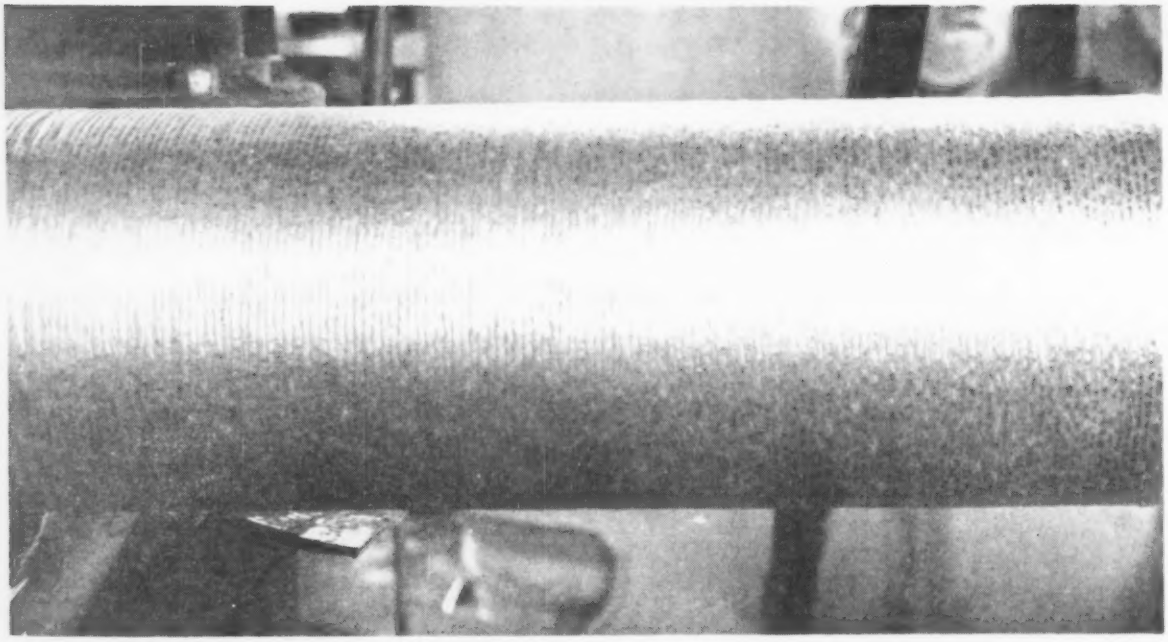
To assure concentric head formations in relation to the shank, the machine's gate, or heading ram, is mounted on two long guide rods. These run in bushings in the front and back of the frame. The gate is additionally supported in frame ways on replaceable, hardened liners.

The horizontal shifting punch slide carries two independently adjustable punch holders. It mounts on an accurately fitted dovetail slide. This insures precise alignment for both longitudinal and horizontal punch movements in relation to the single heading die. Cams operate the punch shifting mechanism, entirely eliminate all compensator devices.

To ease the high speed stresses, the unit mounts on a cast iron block with rubber mounting pads.



QUICK UPSETTER: This cold header upsets 1/8-in. diam x 3/4-in. long blanks at a 450 per minute clip.



UNIFORM DEPOSIT: Close control of spiral bead means surface can be easily ground to near-mirror finish.

Surfacing With Stainless Prevents Pit Corrosion

By **J. A. Rau**—Vice-President, Engineering, Allison Steel Mfg. Co., Phoenix, Ariz.

Sliding shafts, whether operating under pressure or not, often are subject to pit corrosion.

When such is the case, you're apt to have trouble in providing a tight seal and maintaining good lubrication.

Here's a solution to the problem using a welding technique.

▪ Pit corrosion on the rams and shafts of extrusion presses can cause poor performance. This is what happened to the 4000-ton presses at Reynolds Metals Co., Phoenix, Ariz.

To overcome this problem, Allison Steel Mfg. Co., Phoenix, restored the pitted shafts by protecting the critical shaft areas with stainless steel. The technique proved so good that even new shafts are now surfaced with stainless steel before being put into service.

Submerged Arc Welding — The stainless steel protective coating gets deposited on the shaft with automatic submerged arc welding equipment. The welder mounts on the arm of a heavy post drill-press stand which, in turn, rides on the cross carriage of a large Simmons heavy-duty lathe. The lathe has a 48-in. swing and about a 40-ft bed.

The shaft turns slowly at constant speed. The automatic welding head lays a continuous bead of stainless steel along the shaft, as the carriage traverses slowly by means of a screw feed. A special agglomerated flux flows over the arc, directed from front and back by two hoppers and nozzles.

Why Such Care?—The hydraulically-powered extrusion presses at Reynolds hot form a wide variety of shapes, solid and hollow, in aluminum alloys. It is essential that no leakage occur where the shafts enter stuffing boxes. Corrosion on the shaft was believed to have been accelerated by the lubricant used.

This sort of spotty corrosion develops principally when equipment is standing idle. It's noted often in as short a time as 24 hrs.

The shafts of medium-carbon steel include pullback shafts, plunger shafts and main rams. Diam-

eters may be 6½, 7, 9, 10, or 15 in., some shafts being as long as 22 ft. Length of built-up areas varies from 4 in. up to 10 ft.

Standard Welding Head — The welding head is a standard Lincoln Electric LAF automatic. It's powered by a 900-amp motor generator. Vertical adjustment for different diameter shafts is done quickly by changing the position of the supporting arm on the drill press column. The size of the lathe permits almost any desired side swing.

The electrode wire is ⅛ in. 18-8 stainless steel. It's fed from a 60-lb spool mounted atop the drill press column.

An unusual feature is the provision of two hoppers and nozzles for directing flux over the arc. This arrangement keeps an adequate flux layer to prevent the arc from "popping" through.

In addition, a small sheet metal dam behind the flux nozzle on the near side of the electrode point minimizes flux spillage. Excess flux and slag fall into a sheet metal bin below where it is removed by a vacuum hose for separation and reuse.

Flux For Hardsurfacing—The flux on this type of hardsurfacing is a special composition, Lincoln ST-100. It's made especially for use with the 18-8 stainless steel electrode. An addition of ferrochrome compensates for chromium lost from the electrode wire in the melting process.

Current setting varies with the diameter of the shaft being surfaced, usually ranging from 280 to 330 amp, at 29 to 30 v. Travel speed is from 32 to 40 ipm.

"Stepover" of the deposited bead is done with the movement of the lathe carriage by a continuous screw thread. A No. 6 thread is usually suitable for smaller diameter shafts, and a No. 5 for larger ones.

The result is a continuous tightly packed spiral of deposited metal with overlap and uniformity of shape achieved in no other way.

Low Gearing On Motor—With a 10-in. shaft and arc speed of 40 ipm the speed of rotation figures to about 1¼ rpm. This means a considerable gearing down of the direct-current lathe motor.

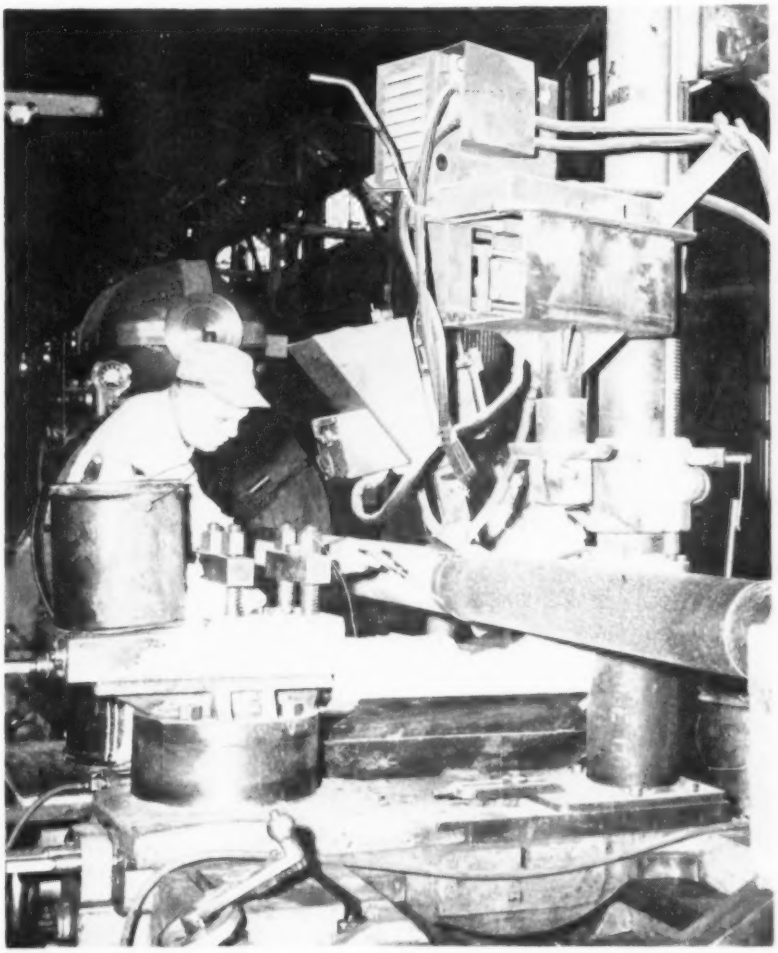
Speed control was at first done with a vertical welding generator, which provided a variable voltage control. Since the desired accuracy was not obtained, a variable-speed drive of the V-belt and adjustable sheave type was installed. It combined with a synchronous gearhead motor and tachometer to result in considerable improvement in speed control and weld quality.

Surfaced shafts are machined in the same lathe. The requisite tool posts and holders get installed on the cross carriage, after removal of the welding unit by crane.

May Need Straightening — Occasionally, some straightening of finished shafts is necessary. It's probably due to the stresses set up during the extrusion press operations which get relieved to varying degrees during welding.

Adjustments in welding speed, cooling procedures and other details often serve to minimize such out-of-line conditions. The attention to such details, although time consuming, is essential.

After machining and straightening, the shafts are ground to a near-mirror finish and returned to service. Records show complete satisfactory performance of the built-up shafts in periods of well over a year, with no signs of corrosion or other defects in the stainless steel surfaces.



SUBMERGED ARC: Double hoppers and nozzles direct flux both ahead and behind arc. Vacuum recovery permits reuse of excess flux.

ONE MILLION POUNDS: That's the inventory needed to keep deliveries flowing to stainless strip users. Some orders run a few pounds.

Z-Mill Rolls Small Orders

Small firms can survive even among the stiffest competition. One firm proves this point . . . but two factors are a must.

First, there's the ability to turn out quality. Second, getting the product to the user on time. This firm keeps production up by doing both.

■ In the midst of today's competition, there's much concern as to how small businesses can survive under the pressure of big business. Will they be priced out of the field? Will vast research facilities overtake them? Or will mass-production plants force them to close?

On the contrary, some small businesses thrive on the special services and products they render to industry. Others must modernize to keep pace with the growing flow of orders.

Ulbrich Stainless Steels, Wallingford, Conn., stands out as an example of what a small business can do in its own field. It specializes as a supplier of stainless strip for springs, electronic parts, gaskets, jewelry, aircraft parts, controls and a number of other items. To accommodate manufacturers of such products, Ulbrich supplies ultra-thin strip in all the popular 300- and 400-series grades as well as the 200-series in small quantities.

Geared for Service—Based on a policy of accepting even the smallest order, Ulbrich filled requests for pieces of stainless strip no more than a foot long. Most orders ranged under 500 lb for stock no more than a foot wide. Heretofore, strip thickness was limited to 0.005 in.

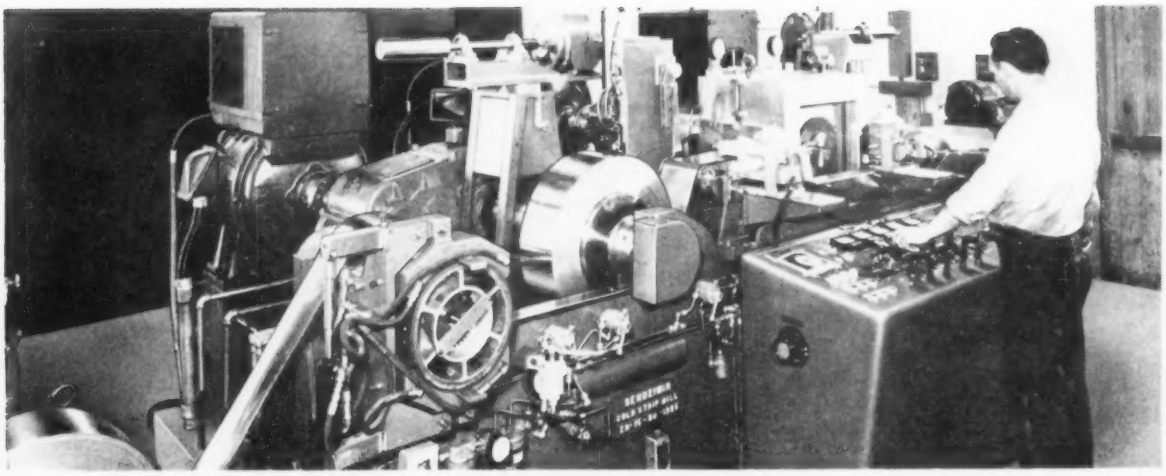
Installation of a Sendzimir Z-mill, made by Waterbury Farrel Foundry & Machine Co., rounded out the product line still further. It enabled Ulbrich to roll strip down to 0.0005 in. and to fill orders faster. With the higher output of the new 8½-in. wide mill, orders up to 2000 lb can now be filled without difficulty. In spite of this, the firm still refuses to turn down orders for as little as 2 lb.

With the new mill, supply lines have now been opened to other users, particularly those who need thinner gages rolled to precise tolerances. On strip down to 0.005 in. thick, the tolerance is held within ±0.0002 in., and thinner strip is held within ±0.0001. Besides stainless, the mill has also been used for rolling super alloys and Inconel strip in thicknesses of 0.015 to 0.020 in., maintaining a tolerance of ±0.0005 in.

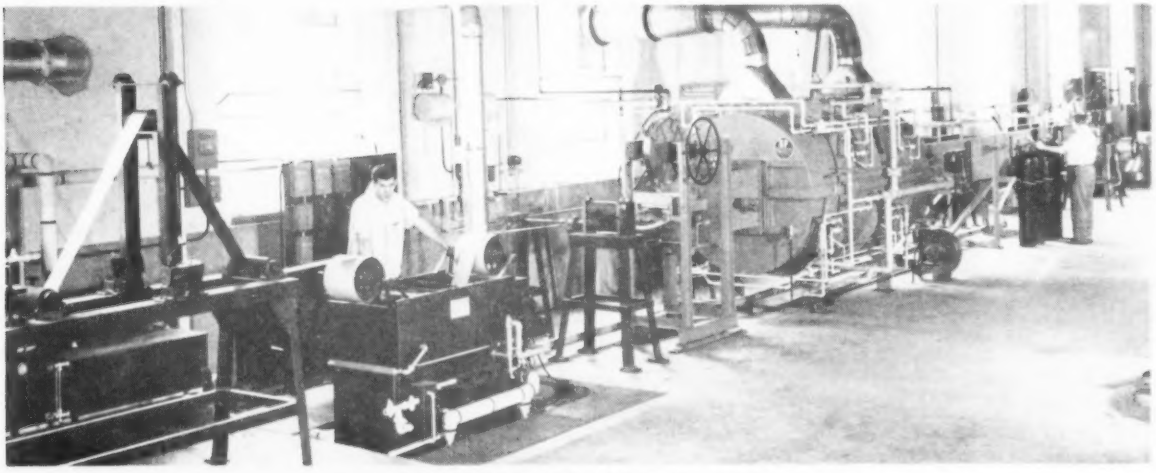
Other Facilities — Part of the modernization program includes an electric continuous-stand annealing furnace. Thus, it's now possible to supply users with strip of a readily workable hardness and finish.

Another piece of equipment which helps to achieve more efficient production is a Ruesch slitter. Because of the tension problems in slitting such thin-gage materials, this machine had to be especially designed to avoid slowing down production. It's designed to instantaneously make up any variance in tension. Some material is slit to a width of only 0.040 in., ±0.001 in.

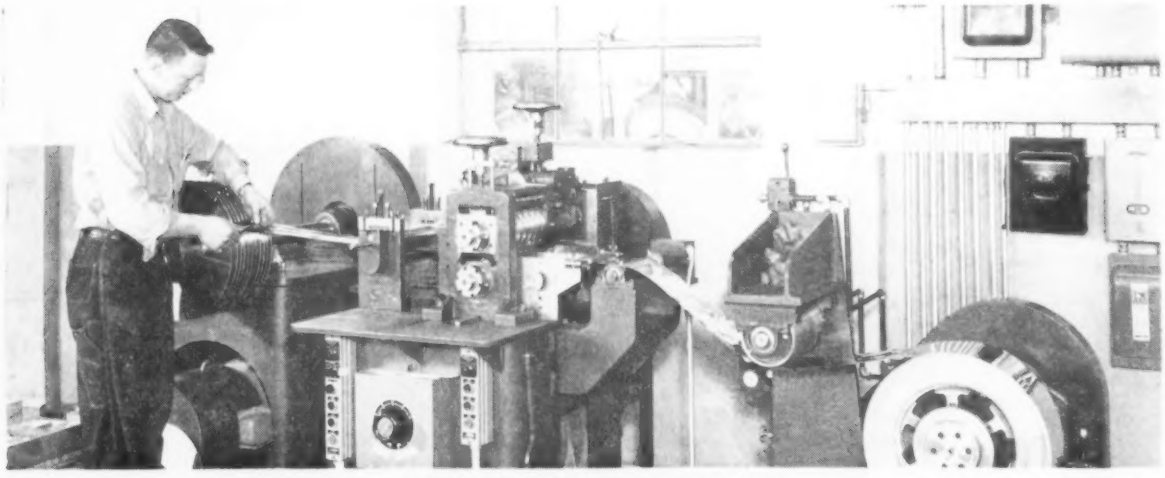
The need for modernization isn't entirely due to the firm's ability to supply strip materials of the thicknesses and properties desired. Perhaps more important are the service aspects which go with every order. First, to assure quick delivery Ulbrich maintains an inventory of about a million pounds. Thus, orders can be filled promptly.



PRECISION ROLLING: All popular grades of stainless in 200-, 300- and 400-series are rolled as thin as 0.0005 in., ±0.0001 in.



SOFTENING PROCESS: For those users who need a more workable material, this EF electric furnace anneals strip to dead softness.



NARROW AND THIN: Slitting isn't easy when it involves strip as thin as 0.0005 in. but this slitter does it without damage to material.

Constant Surface Cutting Speed Saves Time and Tools

By A. S. Albrecht—Metallurgical Engineer, The Monarch Machine Tool Co., Sidney, O.

There is a best surface cutting speed for every metal and alloy.

But for most production turning work, the speed choice is a compromise.

Holding the most efficient speed value on all diameters is good business. Here's why.

▪ The use of constant surface cutting speed is of considerable interest and importance in production turning operations. It involves determining the correct cutting speed for a given material, then maintaining this speed on all diameters throughout the machining cycle.

Present practice on many production turning jobs is to use one spindle speed for machining the part. Normally, shop standards on such jobs represent a compromise in the form of some mean value of cutting speed.

This can lead to loss of tool life because the cutting speed is not necessarily balanced to the chip load, nor to the machinability of the metal. In addition, an improperly loaded machine tool doesn't work at peak efficiency, nor does it use the metal removal capacity designed into it.

Synchronize Motor — Although dc drives are common on many machines, this in itself does not constitute constant cutting speed control. In such cases it is still necessary to regulate spindle speed manually to accommodate changes in the diameter of the work. Truly constant cutting speed control means that motor speed must be synchronized with tool movement and rate of feed.

Lathes equipped with dc drives and constant surface speed control are especially valuable for machining large diameter parts, and for facing operations where surface finish is a principal factor. Such machines are used extensively in the steel and aircraft industries.

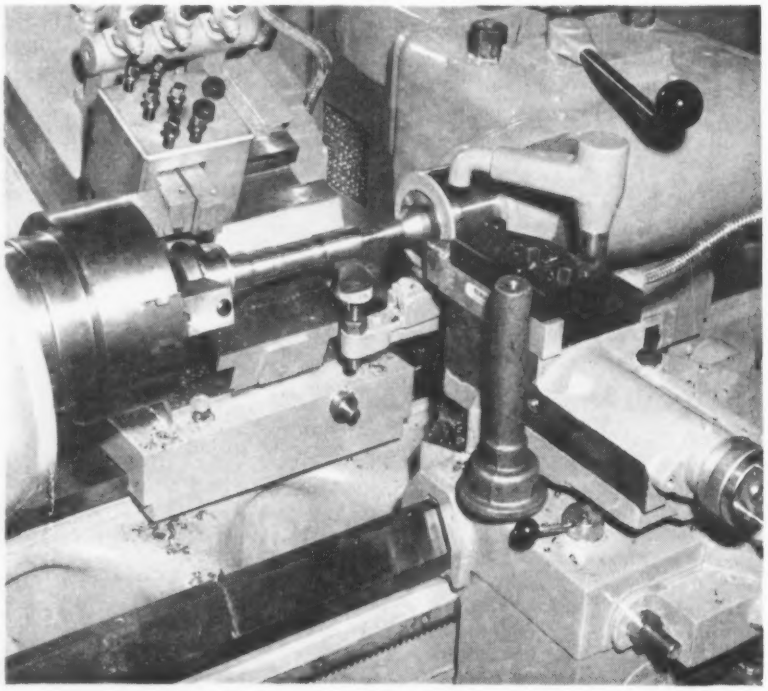
Actually, constant surface cutting speed applies to shaft turning just as much as it does to facing cuts on large flanges, rings, and discs. For example, where a large amount of material must be removed from bar stock, the technique improves tool life considerably. On forgings of varied diameters, the use of constant surface speed results in shorter machining cycles.

Better surface finish is also obtained on secondary operations when a constant cutting speed is used.

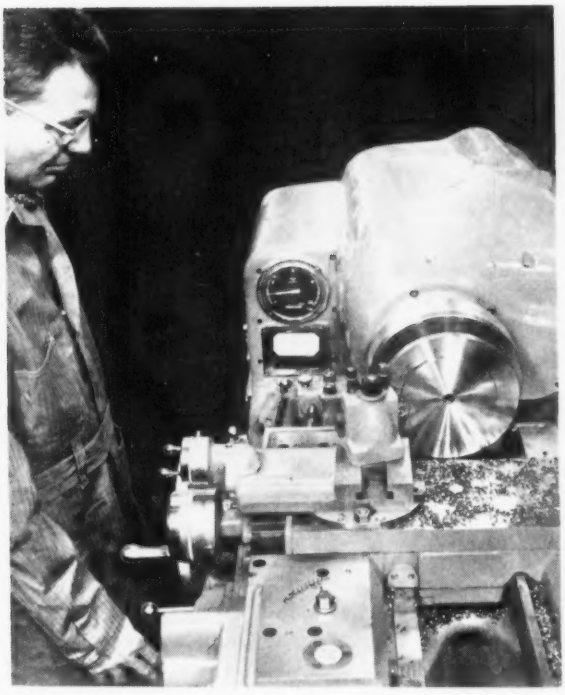
Get All Benefits—It is, in fact, important to maintain a correct balance of speed and feed on all diameters in production turning. It results in maximum tool life, minimum distortion, improved finish, reduced power, and shorter cycles.

The improvement in cutting is due to the effect speed has on shear action, tool forces, and tool wear. At lower speeds tool forces increase, causing excessive tool pressure. This

(Continued on page 126)

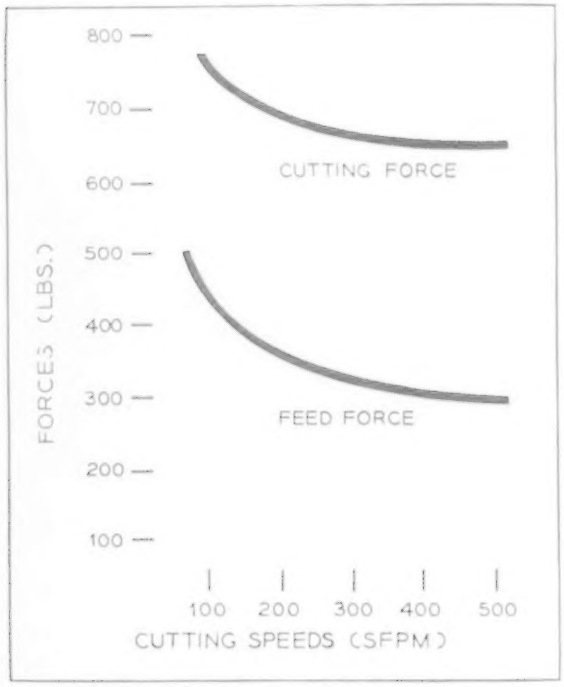


WORTHWHILE SAVINGS: Using the most efficient uniform speed to turn multiple diameters on this forging cut machining time by 30 pct. Tool life and surface finish of the workpiece were improved considerably.

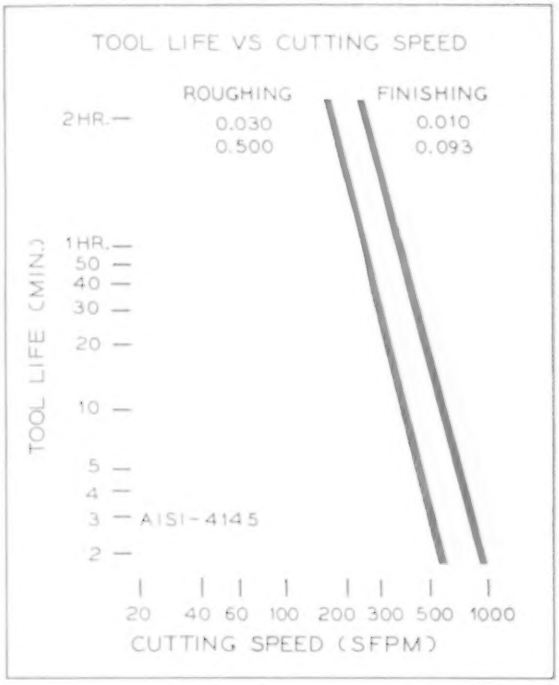


UNIFORM THROUGHOUT: Constant surface cutting speed in facing this alloy steel part improves finish and accuracy, yields uniform chips.

HOLD IT STEADY: Constant surface speed is essential to hold tolerances on large, thin sections. Steady tool force cuts distortion.



THE DANGER ZONE: Forces on cutting tools are high at low speeds. This leads to distorted work, possible tool chatter and breakage.



IT TAKES STUDY: Finding the correct surface cutting speed calls for machinability testing and preparation of tool life data like this.

leads to work distortion, possible chatter, and tool breakage. Moreover, on ferritic and austenitic materials, these high tool forces lead to cold-working.

The shear action of a metal is greatly affected by cutting speed, also. Reducing the speed changes the shear angle and produces a thicker chip. It also tends to produce a discontinuous chip.

Build-Up Harms Finish—At extremely low cutting speeds tool buildup occurs. This creates a rough surface finish due to the effect of the fragments which pass off with both the chip and workpiece.

Tool life on actual production jobs is normally based on the number of parts that can be machined before tool regrinding is necessary. It is a function of both the machinability of the metal and the cutting speed.

Excessive speed reduces tool life, of course. However, when turning is done below the recommended cutting speed, overall machining costs increase as a result of longer cycles. Correct cutting speed for a given material should be determined from a machinability test and from data that show tool life at various cutting speeds.

Data Yield Proof—The performance data in Tables 1 and 2 illustrate the advantage of constant surface speed in single point turning. Both jobs were performed on an automatic, multiple cycle air gage tracer lathe having a 25 hp., dc drive and constant cutting speed control.

On production shaft-turning jobs, the average savings in time using constant surface speed is consistently around 30 to 40 pct. For facing cuts and forged parts the savings are considerably greater.

An important point, however, is that in addition to the savings in machining time, tool life is normally improved by 40 to 50 pct. Moreover, there is less tool breakage when work is done at a constant speed.

For Tough Alloys — Constant surface speed also proves advantageous in turning high temperature alloys. A small variation in speed has a large effect on tool life when turning alloys such as A-286, Nimonic 80, and S-816. Feeds must also be closely controlled in turning these forged and cast alloys.

The new ceramic cutting tools are also sensitive to surface speed. They tend to break when low speeds are used to turn small-diameter parts. However, a constant surface speed produces better workpiece finish and tool performance.

On a lathe equipped for constant speed control, all the operator has to do is make the speed setting the job requires. The machine then takes over completely.

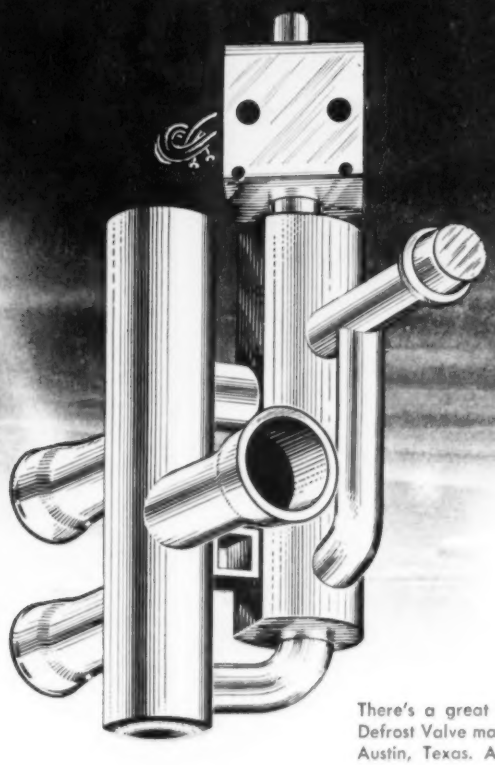
TABLE 1

Machine	Mona Matic 21	
Part	Clutch shaft	
Material	AISI-1345 (287 Brinell)	
Tooling	KTGR-86A carbide insert, 5/8 in. inscribed circle	
Metal removed	35 lb per part	
	Constant Surface Speed	Standard Practice
Rough turn OD		
Sfpm	375	375 (160 minimum)
Feed (ipr)	0.022	0.022
Depth (in.)	0.375	0.375
Removal rate (cu in. per min)	37	15
Horsepower	18.5 (constant)	Varied
Time		
Machining (min.)	5.06	6.40
Total (min.)	7.16	8.50
Tool life		
In. of flank wear	0.022	0.019
Parts per grind	7	4.5

TABLE 2

Machine	Mona Matic 21	
Part	Gear Shaft	
Material	AISI-8620 (187 Brinell)	
Tooling	KTAR-86 carbide insert, 1/2 in. inscribed circle	
	Constant Surface Speed	Standard Practice
Rough turn		
Sfpm	435	620/400
Feed (ipr)	0.015	0.015
Depth (in.)	0.225	0.225
Finish turn		
Sfpm	435	630/220
Feed (ipr)	0.009	0.009
Depth (in.)	0.097	0.097
Horsepower	12.1 (constant)	17.6
Time		
Machining (min.)	1.01	1.31
Total (min.)	1.27	1.57
Tool Life (parts per grind)	125	90
Surface finish (microinches)	110	200/160
Tolerances (in.)	±0.001	±0.0025

EXPERTS SAID: *"It can't be done"*



There's a great future ahead for this Heat Pump Defrost Valve made by CHATLEFF VALVE & MFG. CO., Austin, Texas. And Chase helped pave the way!

. . . but CHATLEFF and CHASE did it!

The heart of a heat pump is this refrigerant transfer valve—and it's tough to produce! But Chase technicians helped the Chatleff Valve Co. solve these problems:

To give the necessary ruggedness, corrosion-resistance and high density, Chase supplied a specially controlled alloy of leaded brass tube shapes. To cut scrap loss and machine time, they were made to extremely close tolerances. And all tube shapes received a closely controlled anneal to prevent subsequent warping. To minimize distortion, Chase created ideal conditions for welding alloys of varying thicknesses, a severe operation.

In fact, Chase did what experts called "impossible": helped set up a single furnace-brazing operation for 13 simultaneous welds! Now this Chatleff valve body is being mass-produced as a single unit . . . with great efficiency and economy. Maybe Chase can help *you*, too!

Bring your production problems to... Chase®

BRASS & COPPER CO.
WATERBURY 20, CONNECTICUT
SUBSIDIARY OF KENNECOTT COPPER CORPORATION

The Nation's Headquarters for Brass, Copper and Stainless Steel

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York (Maspeth, L.I.) Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury

Metal Stamping Facilities
by Lansing
at your Service for...
ELECTRICAL EQUIPMENT
HOUSEHOLD APPLIANCES
TRANSPORTATION EQUIPMENT
INDUSTRIAL EQUIPMENT
FARM IMPLEMENTS
Lansing Stamping Co.
ESTABLISHED 1914
LANSING 2 MICHIGAN

WARD STEEL CO.

PROMPT WAREHOUSE SERVICE ONLY
Most Complete Stock in America of
BLUE TEMPERED SPRING STEEL
We believe that the way to sell is to carry a stock which permits satisfying any reasonable warehouse demand

87B Rindge Ave. Ext. Phone UN 4-2460
CAMBRIDGE 40, MASS.
Branch
3042-3058 W. 51st Street, CHICAGO, ILL.
Phone: Gravehill 6-2600

New Catalogues And Bulletins

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, p. 134.

Corrosion Fighter

Described in a data sheet is a cadmium brightener. This material, it states, plates parts faster and brighter. (Smoothex, Inc.)

For free copy circle No. 1 on postcard p. 134

Tool, Die Cracking

Means of eliminating cracking hazards in making tools and dies are discussed in an 8-page brochure. (Carpenter Steel Co.)

For free copy circle No. 2 on postcard p. 134

Tape Controls

Magnetic tape instrumentation is explored in a 16-page booklet. It gives a good review of the entire subject. (Ampex Corp.)

For free copy circle No. 3 on postcard p. 134

Nibblers

Air powered and electric nibblers are detailed in a brochure. These tools cut to 3/16 in. of copper, brass, aluminum 10-gage stainless, and 8-gage mild steel. It weighs 12 lb. (Fenway Machine Co., Inc.)

For free copy circle No. 4 on postcard p. 134

Induction Brazing

Induction brazing, its advantages and properties, are described in a technical bulletin. It contains a formula for estimating power requirements and tables for computing coupling efficiency for various metals and coil types. (General Electric Co.)

For free copy circle No. 5 on postcard p. 134

Plating Filters

Modern filtration in the plating industry is discussed in a 16-page manual. It mentions one company's facilities in this field. Typical installations appear. Tubular, vertical and horizontal filters are covered in detail. (Industrial Filter & Pump Mfg. Co.)

For free copy circle No. 6 on postcard p. 134

Turret Lathe

Vertical turret lathes are pictured in a 24-page catalog. It presents information on 32, 42 and 52-in. models. (Gliddings & Lewis Machine Tool Co.)

For free copy circle No. 7 on postcard p. 134

Shipping

Heavy problems can be packed and shipped with ease. So advises a 24-page pamphlet. It explains how corrugated boxes solve many heavy products shipping worries. (Hinde & Dauch.)

For free copy circle No. 8 on postcard p. 134

Pipe Union

For use with light wall Schedules 5 and 10 stainless steel pipe, a new union provides a serrated face for the gasket material of your choice. The gasket eliminates leakage that sometimes occurs with ground joint stainless unions. Literature de-

scribes the new design. (Speedline Div., H. T. Potts Co.)
For free copy circle No. 9 on postcard p. 134

Hardness Testing

Need a hardness tester that works well in the field? Well, a new 4-page bulletin describes a 30-oz, easily operated, accurate instrument that does just that. (Newage Industries, Inc.)
For free copy circle No. 10 on postcard p. 134

Automatic Welding

Automatic welding wire for submerged arc and inert gas welding is described in a bulletin. Other company publications cover equipment for automatic welding, iron powder electrodes low hydrogen, and advantages of iron powder electrodes. (Reid Avery Co.)
For free copy circle No. 11 on postcard p. 134

Steel Buildings

Steel buildings are described in a folder. It covers four types featuring steel lock panel construction. Clear span widths range from 5 ft 4 in. to 100 ft with many intermediate widths. (Armco Drainage & Metal Products, Inc.)
For free copy circle No. 12 on postcard p. 134

Lubricant

Just out is a brochure on a silicone-based grease. This material is primarily for high-temperature, slow-speed bearings. However, it has many other uses, too. (Dow Corning Corp.)
For free copy circle No. 13 on postcard p. 134

High-Heat Material

Excellent non-corrosion and high-temperature service is reported for a material in new literature. It gives data on Croloy 18-8 Ti [AIS Type 321]. (Tubular Products Div., Babcock & Wilcox Co.)
For free copy circle No. 14 on postcard p. 134

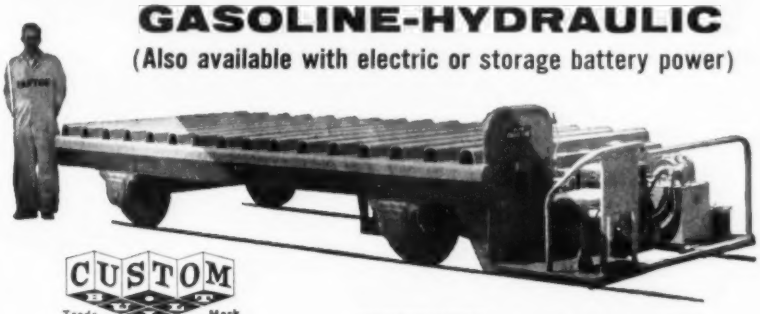
Investment Casting

Case histories of successful investment casting applications appear in a series of brochures. They offer

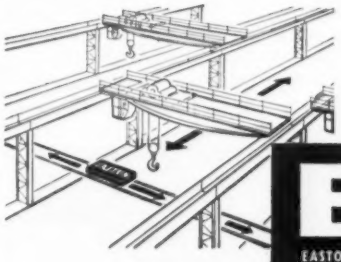
CROSS-BAY® CAR

GASOLINE-HYDRAULIC

(Also available with electric or storage battery power)



CUSTOM BUILT Trade Mark



CUSTOM-BUILT in capacities from 5 to 500 tons. Supplements overhead crane work in multiple-bay plants. Also for low-cost, heavy-duty service between buildings, storage and shipping areas.

Write or telephone for technical information.

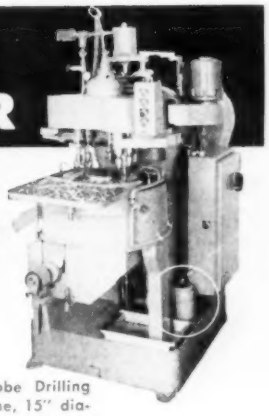
EASTON®

EASTON CAR & CONSTRUCTION COMPANY • EASTON, PA.

A-1080

BUILT BETTER TO RUN LONGER

Ruthman Gusher COOLANT PUMPS



Illustrated is a Globe Drilling and Tapping Machine, 15" diameter dial size, equipped with a Gusher Pump.

MODEL 9050 IMMERSED TYPE

Check these advantages that Gusher Pumps offer you: *Simple Construction*, eliminating seals and packing glands. *Improved Balance*, electronically balanced rotating assembly. *Well Built*, with rugged castings, heavy-duty, pre-lubricated ball bearings, and precision ground one piece shaft. *Dependable Performance*, with split-second coolant delivery.

THERE'S A GUSHER FOR EVERY REQUIREMENT

Write today for catalog.

Ruthman MACHINERY CO.

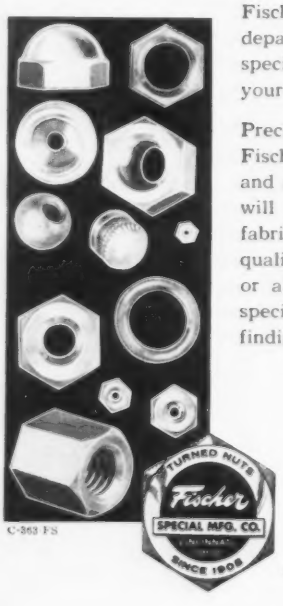
• COOLANT PUMPS
• CIRCULATORS • AGITATORS
• MOLTEN METAL PUMPS

1809-1823 READING RD. CINCINNATI 2, OHIO

WITH

"Fischer Turned"

BRASS AND ALUMINUM NUTS



C-363 FS

Fischer nuts are like "pay dirt" to your production department. Whether they are everyday standards or special and odd size nuts, Fischer will produce them to your specifications from brass or aluminum.

Precision-turned on unique high-speed machinery, Fischer nuts will establish new standards of uniformity and accuracy within your plant. All of this, of course, will speed your assembly operations . . . and cut fabrication costs. There is no premium for this extra quality. Before you place your next order for brass or aluminum nuts (standard or special) send your specifications to Fischer. You'll discover it's like finding "pay-dirt".

Write today for complete information and catalog.

Fischer

FISCHER SPECIAL MFG. CO.

445 Morgan St., Cincinnati, Ohio, WOodburn 1-1280

FREE LITERATURE

a panoramic view of the entire investment casting field, including both frozen mercury and lost wax processes. (Alloy Precision Castings Co.)

For free copy circle No. 15 on postcard p. 134

Positioner

A data sheet lists advantages of a new 36-in. positioner. This tilting rotary table is for large jobs needing precise circular spacing and angular positioning. (Pratt & Whitney Co., Inc.)

For free copy circle No. 16 on postcard p. 134

Hard Facing

Hard surfacing electrodes are covered in a 20-page booklet. Those best suited for hundreds of different jobs are charted. (Metal & Thermit Corp.)

For free copy circle No. 17 on postcard p. 134

Steel Strapping

Automatic round steel strapping machines are pictured and described in new reading matter. It illustrates two sizes: standard and large openings. (Gerrard Steel Strapping Div., United States Steel Corp.)

For free copy circle No. 18 on postcard p. 134

Electric Motors

One firm's complete line of electric motors is listed in a 12-page brochure. It also illustrates several actual motor illustrations. (Sterling Electric Motors, Inc.)

For free copy circle No. 19 on postcard p. 134

Lift Trucks

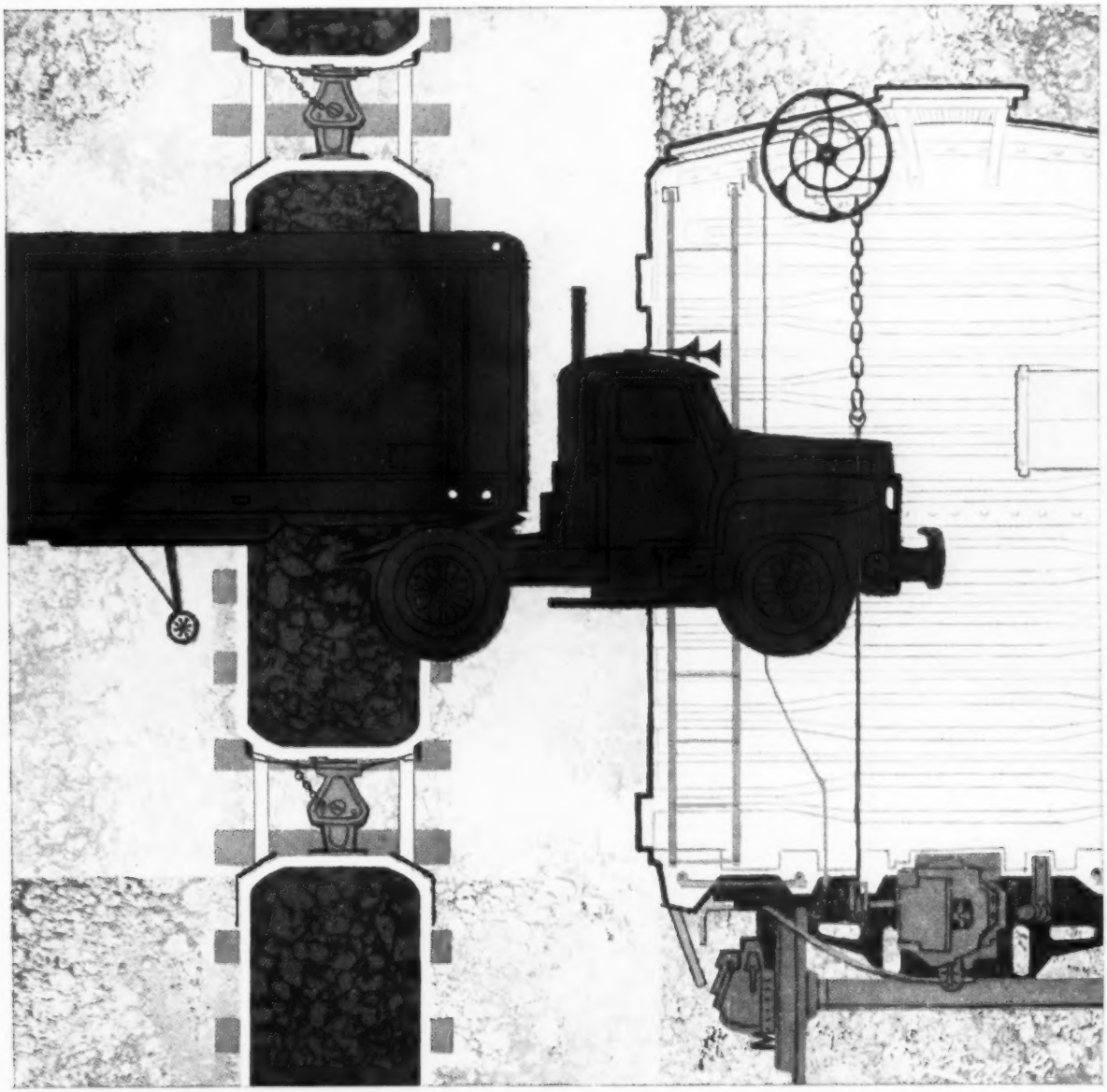
Lift trucks in 15,000 and 20,000-lb capacities are detailed in a 16-page brochure. (Materials Handling Div., Yale & Towne Mfg. Co.)

For free copy circle No. 20 on postcard p. 134

Face Shields

A new means of heat-forming face shield windows is covered in a brochure. Thanks to this method, the protective shields last longer. (American Optical Co.)

For free copy circle No. 21 on postcard p. 134



JALTEN low alloy, high-strength J&L steel

provides
equal strength
with lighter
weight

Jalten permits high design loads with reduction in section. Usual reduction is two gages with weight saving as much as 25%.

High strength of Jalten is the result of balanced chemical composition, carefully controlled during production. Strength is retained through fabrication and welding without further heat treatment.

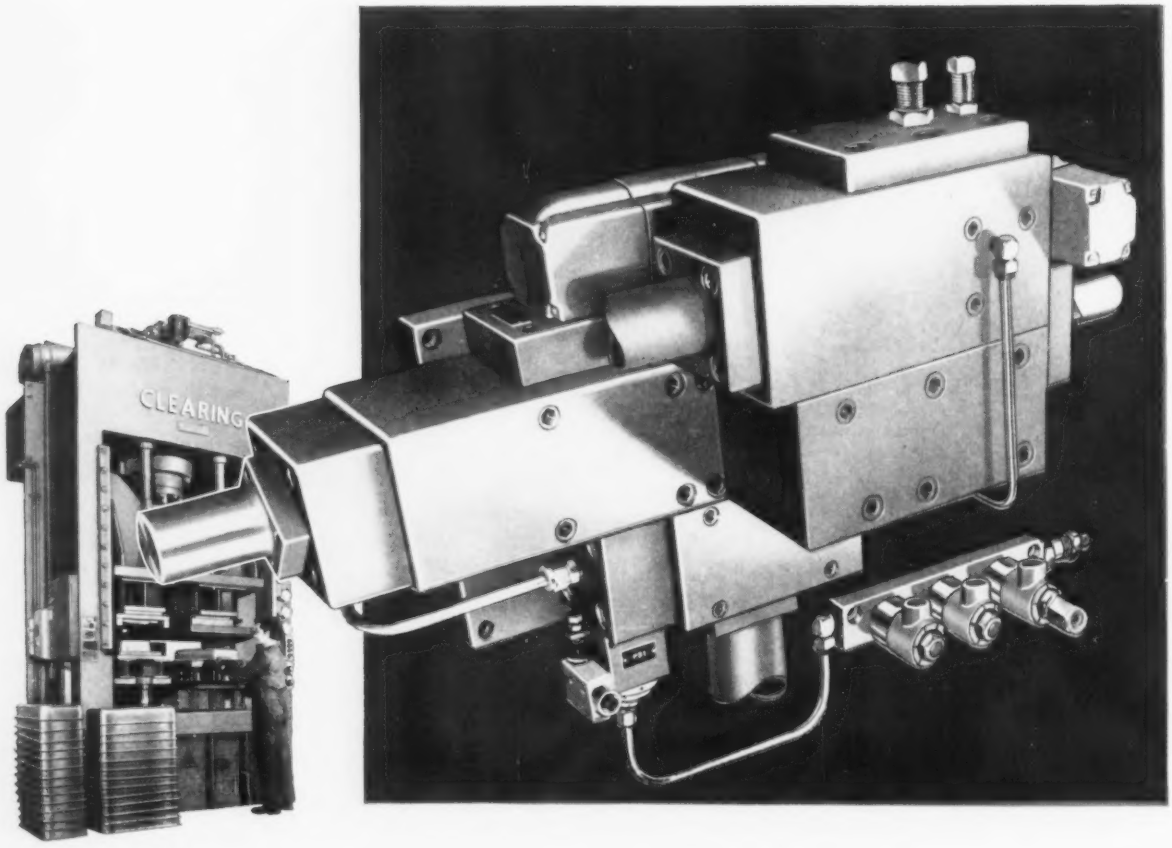
Jalten is available in the forms you require (plates, hot rolled sheets, hot rolled bars, small shapes and structurals). Jalten can be purchased in three grades to meet specific requirements for high strength, formability, impact, resistance to abrasion and corrosion.

Your local distributor can supply you with information on Jalten, or you can write direct to the Jones & Laughlin Steel Corporation, Dept. 403, 3 Gateway Center, Pittsburgh 30, Pennsylvania.

J&L STEEL

Jones & Laughlin

. . . a great name in steel



The heart of steel that can step up the pulse of your drawing operations

To paraphrase Hamlet, *the thousand natural shocks that a press*—a hydraulic press, that is *—is heir to,* raises havoc with pipe joints and valve connections. That's why Clearing engineers designed the compact operating valve shown above.

In this solid steel unit all operating valves are manifolded, reducing the amount of intervalve piping. Valve bodies are machined from forged steel and all chambers and ports are bored from solid. The unit is firmly mounted to the oil reservoir, thus simplifying inspection and servicing. Valve bodies and spools are free to move under all conditions without binding.

If your production requires hydraulic presses, investigate Clearing hydraulics. Find out about the new high speed approach and return stroke cycles that step up production rates. Find out about the remarkable tonnage and stroke controls. Complete information on Clearing Hydraulics is yours for the asking.

Write for your personal copy of Bulletin 231, Clearing Hydraulic Presses.

CLEARING PRESSES THE WAY TO EFFICIENT MASS PRODUCTION

CLEARING MACHINE CORPORATION • *Division of U.S. INDUSTRIES, INC.*

6499 WEST 65th STREET • CHICAGO 38, ILLINOIS • HAMILTON PLANT, HAMILTON, OHIO

FREE LITERATURE

This section starts on Page 128

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just circle the number and mail the postcard.

Plant Expansion

"Why postpone plant expansion because of lack of funds and high interest rates?" asks a publication. The booklet explains that these problems just don't exist in one particular industrial area. Locate your new plant here, it suggests, because—for one thing—it costs less to borrow here. (West Penn Power Co.)

For free copy circle No. 22 on postcard

Wrought Alloys

Wrought high-temperature alloys are analyzed in a technical booklet. So are facilities for working them, including hot forging, cold forming, machining, welding and heat treatment. (Westinghouse Electric Corp.)

For free copy circle No. 23 on postcard

Hard Facing

Corrosion resistant hard-facing overlays are illustrated in a 4-page brochure. It sets forth details of the four basic hard-facing processes: submerged arc, heliarc, automatic or manual gas welding. (Cleveland Hard Facing, Inc.)

For free copy circle No. 24 on postcard

Pipe Threaders

Pipe and nipple threading machines are shown in a 10-page bulletin. (Landis Machine Co.)

For free copy circle No. 25 on postcard

Nickel-base Alloys

In its 104-pages a booklet reels-off up-to-date data on four nickel-base alloys. It gives chemical compositions, physical, mechanical and high-temperature properties of the alloys. Also included: a report on how the materials stand up to 250 common corrosives. (Haynes Stellite Co.)

For free copy circle No. 26 on postcard

Cranes

Truck and floor cranes are covered in a data sheet. (Tubar Crane Div., Uhrden, Inc.)

For free copy circle No. 27 on postcard

Leaded Steel

Ready for use, a leaded alloy steel is described in a 4-page brochure. This material is, upon delivery, already heat treated, machine straightened and stress relieved. (Horace T. Potts Co.)

For free copy circle No. 28 on postcard

Materials Handling

In a dozen pages, a booklet offers ideas for better materials handling. Several tips on overhead systems appear. (Whiting Corp.)

For free copy circle No. 29 on postcard

Machinery

Metalworking machinery is covered in a catalog. It offers data on: rolling mills, gang slitters, straighteners, tube mill equipment, and wire machinery. (H. J. Ruesch Machine Co.)

For free copy circle No. 30 on postcard

Carbide Tools

Cemented carbide mining tools are outlined in a 16-page booklet. (Metallurgical Products Dept., General Electric Co.)

For free copy circle No. 31 on postcard

Plastics

A folder gives data on a plastics firm's facilities for making various products. (Penn-Plastics Corp.)

For free copy circle No. 32 on postcard

Heat Treating

How modern gas chemistry upgrades and protects metals is told in an 8-page bulletin. It reviews

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. **7/18/57**

Circle numbers for Free Technical Literature or Information on New Equipment:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70

If you want more details on product advertised in this issue fill in below:

Page .....Product .....

Page .....Product .....

Page .....Product .....

PLEASE TYPE OR PRINT

.....
Your Name

.....
Title

.....
Company

.....
Co. Address

.....
City Zone

.....
State

FIRST CLASS
PERMIT No. 36
(Sec. 34.9 P.L.&R.)
New York, N. Y.

BUSINESS REPLY CARD
No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

THE IRON AGE
Post Office Box 77
Village Station
NEW YORK 14, N. Y.

BUSINESS REPLY CARD
No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

THE IRON AGE
Post Office Box 77
Village Station
NEW YORK 14, N. Y.

FIRST CLASS
PERMIT No. 36
(Sec. 34.9 P.L.&R.)
New York, N. Y.

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. 7/18/57

Circle numbers for Free Technical Literature or Information on New Equipment:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70

If you want more details on product advertised in this issue fill in below:

Page ..... Product .....
Page ..... Product .....
Page ..... Product .....

PLEASE TYPE OR PRINT

Your Name .....
Title .....
Company .....
Co. Address .....
City ..... Zone .....
State .....

FREE LITERATURE

principal heat treating factors: (1) the furnace, (2) the gas generator, and (3) the controller. A chapter covers carbon control. (Surface Combustion Corp.)

For free copy circle No. 33 on postcard

Fire Protection

Buying an automatic sprinkler system can turn out to be the best investment you ever made. A booklet explains why firms that install a new, efficient fire-fighting network actually cut costs. Savings on insurance do it. ("Automatic" Sprinkler Corp. of America.)

For free copy circle No. 34 on postcard

Hand Tools

Over 4900 tools are listed in a 120-page catalog. Some 500 of these are new items. Included are: wrenches, clamps, tool holders, set up and hold down tools, cutters and pipe tools. (Armstrong Bros. Tool Co.)

For free copy circle No. 35 on postcard

Iron Powder Sponge

Domestically produced sponge iron powders are described in a bulletin. (Hoeganaes Sponge Iron Corp.)

For free copy circle No. 36 on postcard

Automatic Positioner

Several standardized automatic parts handling units appear in a bulletin. It describes setups that combine with existing equipment to automate small parts assembly operations. (Dixon Automatic Tool, Inc.)

For free copy circle No. 37 on postcard

Corrosion Proofing

Selecting the best corrosion proofing methods and products is debated in a brochure. It covers corrosion-proofing cement mortars, interliners, protective coatings and linings. (Pennsalt Chemicals Corp.)

For free copy circle No. 38 on postcard

Descaling Steel

An 8-page booklet deals with mechanical descaling of steel. It points out how plants needing clean hot-rolled steel can cut costs. A case history tells of a firm that switched from chemical to mechanical descaling. (Wheelabrator Corp.)

For free copy circle No. 39 on postcard

Carbide Material

For high production use, a new general purpose carbide material is covered in a data sheet. (Firth Sterling, Inc.)

For free copy circle No. 40 on postcard

Hot Water Vent

An automatic hot water valve is described in literature now available. The valve features: a hand operated, non removable vent screw; controlled water flow; fast cycling; cleanable port; and positive shut-off. (Taco Heaters, Inc.)

For free copy circle No. 41 on postcard

Fork Truck

Featuring a 6000-lb capacity, a fork truck for outside materials handling appears in a 4-page folder. It lists specifications and operating characteristics. (Clark Equipment Co.)

For free copy circle No. 42 on postcard

Steam Cleaner

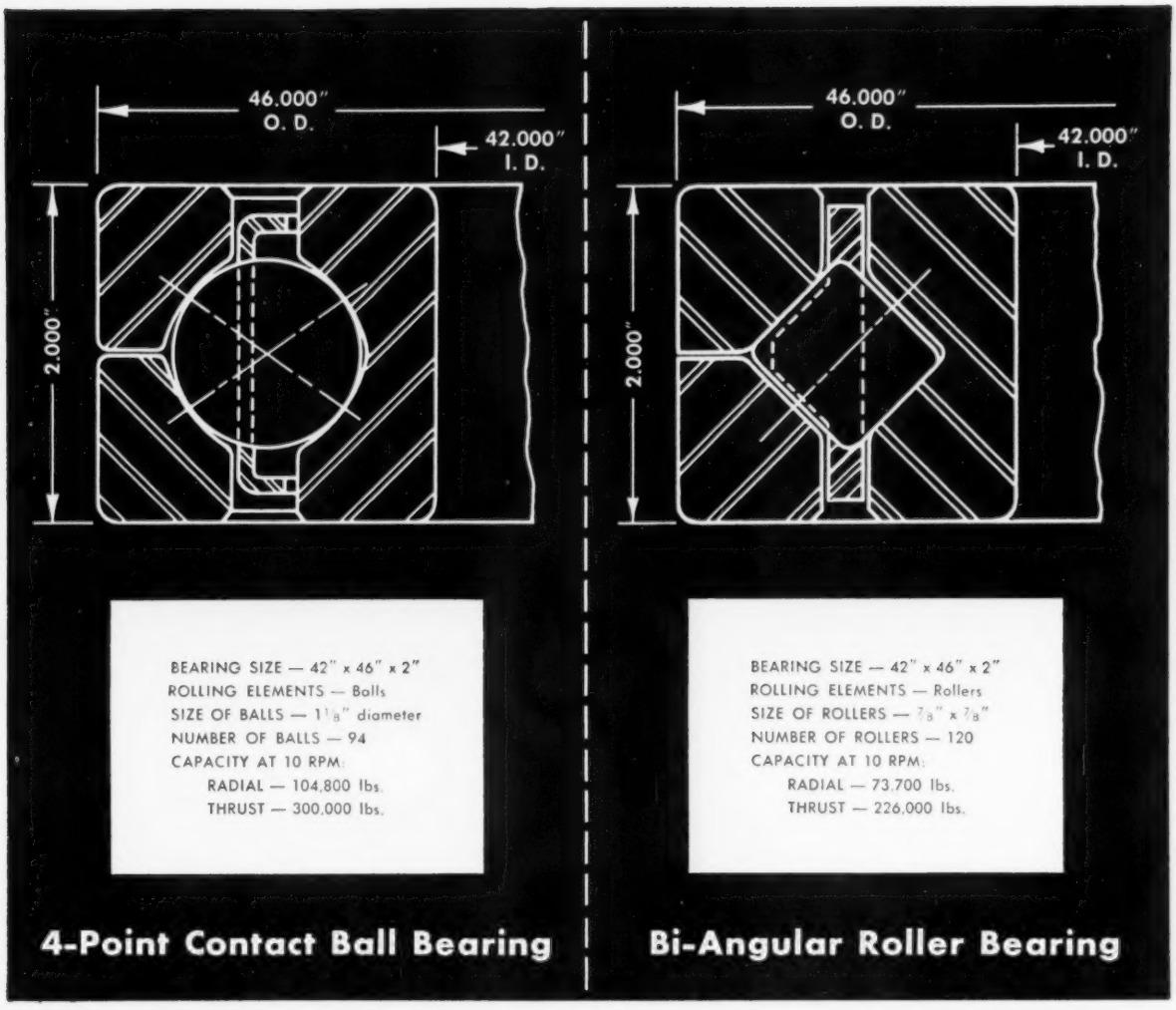
Compactness is a key feature of a new stream cleaner. It has a 60-gal capacity and is recommended for light-duty, general utility cleaning. A brochure describes it. (Clayton Mfg. Co.)

For free copy circle No. 43 on postcard

Plastic Ducts

How welded polyethylene ducting systems do away with corrosion in handling alkali and acid fumes is the subject of a folder. It discusses the material and its advantages. (American Agile Corp.)

For free copy circle No. 44 on postcard



SURE we make both, but we recommend only one

Yes, Kaydon manufactures both — 4-point contact ball and bi-angular roller bearings in the same diameters and widths. BUT—we would in almost every instance recommend the former. Why? Because our field application reports consistently prove that the 4-point contact ball bearings are better for most applications than the lower capacity bi-angulars *(See capacity figures in drawings above.)*

Another important difference between the two bearings is that the 4-point contact ball bearing *is not limited to low speeds*, whereas the bi-angular normally should not be used above 10 rpm and usually is suitable only for oscillation. Then, too, the torque in the 4-point contact ball bearings is generally much lower.

Kaydon's unbiased recommendations result from years of bearing design, application and manufacturing experience with *all types* of ball and roller bearings up to 124" in diameter. So, why not contact Kaydon first?

K-563

THE KAYDON ENGINEERING CORP.

MUSKEGON • MICHIGAN

All types of ball and roller bearings — 4" to 120" outside diameter . . .
Taper Roller • Roller Thrust • Roller Radial • Bi-Angular Roller • Needle Roller • Ball Radial • Ball Thrust Bearings.

BLACK WEDNESDAY at KNICKERBOCKER TRUST . . .

For the first 9 months, 1907 was the most prosperous year the United States had experienced — and then quite suddenly, on Wednesday, October 23rd, the big Knickerbocker Trust Company of New York failed after an unexpected wave of withdrawals exhausted their supply of cash. Immediately, other banks all over the Country suffered runs and failed. People rioted in the Bronx. Industrial firms were forced to use "John Doe Checks" (checks made payable to "John Doe," meaning 'cash') to meet payrolls, and merchants and others accepted these in lieu of cash. Almost overnight the Country went from boom to bust.

In this unfavorable atmosphere, John Christensen and Soren Sorensen came to Cincinnati to start their gear business. They weathered this storm and many others in the ensuing fifty years, and today The Cincinnati Gear Company is one of the Country's leading suppliers of custom gears. In fact, we won't take a back seat to *anyone* when it comes to quality and workmanship, as our many satisfied customers will attest. Why not try us for *your* next custom gear order?

THE CINCINNATI GEAR CO.
CINCINNATI 27, OHIO
Fifty Years of "Gears—Good Gears Only"

CINTI ®

TECHNICAL BRIEFS

Installs Big Unit In Crowded Shop

Here's a puzzler: A piece of equipment must be installed in the middle of a very crowded shop. It weighs tons.

Crowding the shop are vital, costly automated machines. A slip can smash these.

How do you get it set up?

▪ Bigger automated machining setups have their advantages. However, they've created at least one problem. This is how to install equipment in confined areas without tying up or endangering nearby production stations.

Such a problem faced Eichleay Corp. when it tried to install a 200-ton crown assembly atop a 3000-ton capacity transfer press in the McKeesport, Pa., plant of Kelsey-Hayes Co. The Pittsburgh contractor tackled the seemingly impossible job and solved it. Not only didn't the installation interfere with production, it cut one-third off normal installation time.

Inch by inch, the jack-block team lifted the press crown.

Out At First — The contractor first had to lift the heavy crown almost 17 ft from the plant floor and lower it on top of the press stands. The fact that the item is 22-ft long and 10-ft high didn't add any encouragement. Normal contracting practice calls for use of a gantry and rigging in similar situations. This method, though, couldn't be employed here.

Installers took one look at the gantry idea and discarded it. Too hazardous, they felt. "Nearby conveyors and production stations would have been endangered every time we hoisted a beam or frame," the contractor frankly admitted.

Calls On Jack—A new approach was tried. Engineers devised a unique method built around the use of eight 100-ton air motor screw jacks. These jacks are ruggedly designed by Duff-Norton Co., Pittsburgh, to tackle tough assignments.

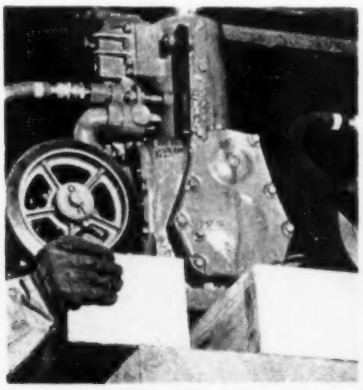
Two jacks were positioned under each corner of the 200-ton crown. Four of the jacks—one under each corner—were raised simultaneously about 14 in. The other set of four was blocked. These two units were alternately raised and blocked until

Want More Data?

You may secure additional information on any item briefed in this section by using the reply card on page 134. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

the crown was 8 in. above the 16-ft height of the stands.

Winch Pitches In—A winch was used to pull the crown and falsework, moving on rollers, into place.



As four jacks provide clearance, a worker blocks a loose jack.

Then the crown was lowered onto the stands and the falsework removed.

The entire job took five days. However, the actual jacking required less than 10 hours. If a gantry had been used, seven days would have been normal for completion.

Direct Chill Machines Cast Large Billets

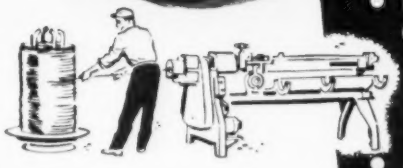
Now in full production at a large aluminum plant are two novel "direct chill" billet casting machines. These units turn out big, quality pieces of aluminum on a semi-continuous basis.

In operation at Kaiser Aluminum & Chemical Corp., Halethorpe, Md., the machines cast a wide variety of aluminum alloys. Even highly alloyed billets with fine metallurgical structure have been turned out entirely free from inverse segregation.

Supplies Metal—Four gas-fired reverberatory furnaces serve-up the hot metal for the casting unit. These furnaces each have a 50,000-lb melting capacity. The metal flows from the holding hearth of the furnaces through a refractory-lined and electrically heated swinging trough into a distributing pan.

WIRE

BACKED BY A HALF CENTURY OF EXPERIENCE



- **Sizes up to 9/16"...**

. . . down to almost the size of a human hair, in low carbon and medium low carbon steels.

- **Wire of many finishes**

the right wire for the job—coppered, tinned, bright, galvanized and other finishes to fit your production needs.

- **Better forming and workability**

Continental Wire is available in almost any temper and analysis in low and medium low carbon steels for your particular forming jobs.

- **Metallurgical service**

Thousands of case histories provide unsurpassed resources for developing a practical solution to your wire problems.

ECONO-COIL—Reduces scrap loss up to 90 percent. Saves material handling time. The Econo-Coil gives you continuous length wire coils of 2000# to 3000# catchweight, in sizes from 12 gage through ½" diameter. Shipped on returnable Econo-Coil pallets.

LEVERPAK—Mechanizes your wire handling, protects wire against moisture, dirt and handling damage. LEVERPAK permits long uninterrupted runs of 500# to 650#, depending on wire sizes. Saves scrap, downtime, stores easily.

SPECIAL SHAPES—D-shaped, V-shaped, oval, half-oval, half-round, square, rectangular, triangular, keystone-shaped and others. Saves fabricating and machining costs.

Chances are you have a problem right now that we can help you solve—with Wire. Call us.

CONTINENTAL

STEEL CORPORATION • KOKOMO, INDIANA

Wire Specialists for over Half a Century

PRODUCERS OF Manufacturer's Wire in many sizes, tempers, and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and special shaped wire. Also Welded Wire Reinforcing Fabric, Nails, Continental Chain Link Fence, and other products.

Practical Idea for the Production Man

Efficient electric hoists...to move materials overhead and release floor space for more valuable operations.

CM HOISTS

CM LODESTAR ELECTRIC CHAIN HOIST
⅛ to 1 ton capacites—First truly heavy duty version of small electric hoist. ⅛ ton model weighs only 51 lbs. Heavy duty self-adjusting brake. Upper-lower safety limit switches. CM-Alloy load chain.

CM METEOR ELECTRIC WIRE ROPE HOIST
½ to 5 ton capacities—Compact, enclosed design. Low headroom. Continuous duty motor with thermal overload protection for heavy duty service. Precision bearings and helical gears for long life. Only 110 volts at push button control.

Good Suggestion for the Maintenance Man!

Rugged lightweight hand hoists and pullers...to make your job easier and safer

CM CYCLONE HAND HOIST
⅛ to 10 ton capacities—Easy to carry and lift. One ton model weighs only 36 pounds. Made of tough aluminum alloy. CM-Alloy load chain. High efficiency. Lifetime lubrication.

CM PULLER THE "ONE MAN GANG"
¾ to 6 ton capacities—Lifts or pulls at any angle. Lever handle operation. Automatic load brake holds at any point. ¾ ton model weighs only 13 pounds. CM-Alloy flexible load chain.

ALSO... *CM Trolleys and Cranes*

Call the CM distributor for descriptive literature, prices and fast delivery from stock.

CM HOISTS AND CHAIN

CHISHOLM-MOORE HOIST DIVISION
COLUMBUS McKINNON CHAIN CORPORATION
TONAWANDA, NEW YORK
REGIONAL OFFICES: NEW YORK, CHICAGO, CLEVELAND
In Canada: McKINNON COLUMBUS CHAIN LIMITED, ST. CATHARINES, ONTARIO

TECHNICAL BRIEFS

Finally it pours through spouts into water-cooled aluminum molds.

Developed by Kaiser's own engineers, the machines produce billets or logs up to 25-ft long and up to 20-in. diam. Depending upon the diameter being cast, each machine can produce two or more billets simultaneously. Loma Machine Mfg. Co., New York City, designed and constructed the mechanical part of these units.

Clean Surfaces — Billets turned out by the units have very clean surfaces. They need no scalping

Routine for the unit are 20-in. diam billets like this one.

prior to extrusion, even in the high-strength alloys. The machines operate at an infinitely variable billet lowering speed up to 8-ipm., and a fixed billet lifting speed of 90-ipm.

Hydraulic equipment for lowering and lifting the mold stool supporting platform comprises a cylinder of almost a 30-ft stroke. The hydraulic system is capable of supporting a maximum billet load of about 20,000 lb.

Anneals Big Castings

Being used to stress relieve big castings at General Electric's Schenectady, N. Y., plant is a large

gas-fired car-bottom furnace. Although it carries a nominal rating of 100 tons, the furnace has processed actual loads as high as 150 tons. Maximum load dimensions are 30-ft long, 18-ft wide, and 16-ft high.

Applying Heat Right Speeds Brazing

Applying heat where it counts helps a materials handling equipment maker produce solid brazed joints quickly. The firm takes advantage of heat's effect on the capillary flow properties of molten silver brazing alloy.

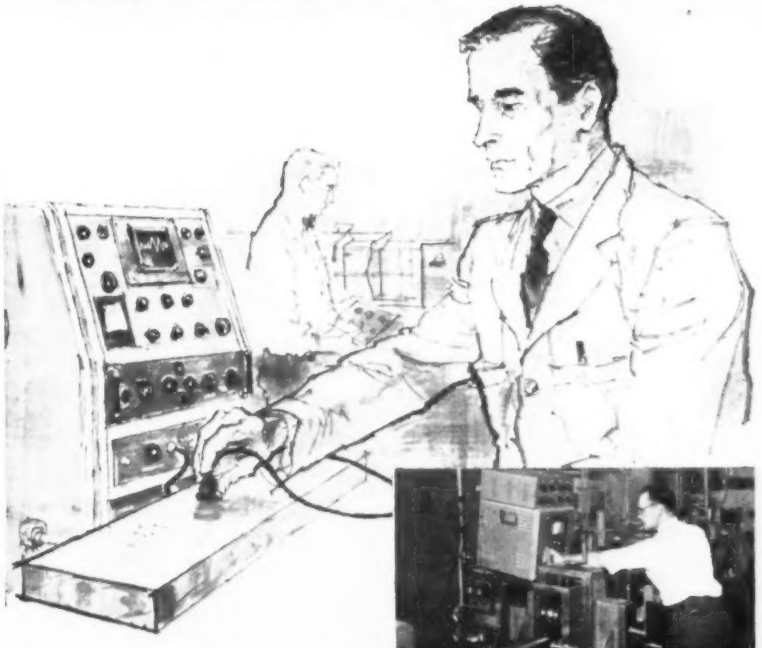
The brazed part is a 7-in. steel brake lever for industrial lift trucks turned out by Automatic Transportation Co., Chicago. This lever is assembled from two parts: (1) a 3/8-in. diam steel rod, threaded, and bent to the required angle; (2) a heavy handle fabricated from 3/4-in. hexagonal bar stock. The handle's end is drilled to a depth of 3/4-in. to provide a socket for seating the rod. Radial clearance is maintained at 0.003 to 0.004 in.

Brazes Rod To Socket—Brazing the rod into the socket produces the brake lever. Workers do this using one ring of 3/32-in. wire of a low temperature silver brazing alloy. Handy & Harman, New York City, supplies the joining material. The problem in brazing this joint is to draw the alloy down into the socket from the face of the handle; it's here that the alloy ring is preplaced during assembly.

The key to distributing the brazing alloy uniformly into the socket is the location of the heat source. Molten silver alloy always moves toward the relatively hottest area of the metal. So workers use the heat source to "steer" the flow of alloy to the joint. Silver alloys flow by capillary action, and this action increases as the temperature goes up.

Cuts Assembly Steps—The brazing setup consists of a three-turn induction coil. Below the coils is

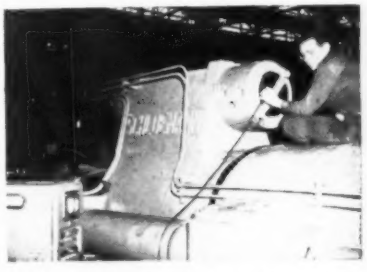
IS YOUR PLANT USING THE MOST MODERN INSPECTION TECHNIQUES?



Sperry Ultrasonic Reflectoscopes are found in the modern metallurgical laboratories of leaders in the metals industry. The Ultrasonic UW Reflectoscope is a new research tool that has proved its reliability and usefulness in the search for closer quality control... for new and better materials. Ultrasonic waves probe deep inside steel... nonferrous metals... ceramics... plastics–revealing even the smallest flaws and hidden internal defects. The Reflectoscope not only locates these flaws—it also determines their approximate size! In addition, it can even be used to determine elastic properties.

Does your laboratory have the latest, most efficient ultrasonic research equipment? Write today for complete information on the Sperry Ultrasonic Reflectoscope—a reliable testing method for most metals!

Automatic Ultrasonic Inspection of continuously produced steel strip and welded tube is one of the most recent Reflectoscope inspection techniques brought from laboratory to production line.



Regular Maintenance Inspection of production equipment, like this extrusion press, is a valuable extra duty which many owners assign to their Reflectoscope when the instrument is not required for lab and production tests.

To keep posted on latest developments in the profitable use of ultrasonic inspection, send for your free copy of our Ultrasonic Inspection News Letter. Write to:

Sperry

303 Shelter Rock Road Danbury, Connecticut

sperry products INC.

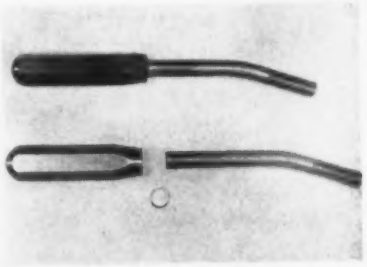
FIRST IN ULTRASONIC INSPECTION

a drilled-out block into which the hexagonal handle is seated. When the assembly is properly seated, the upper coil is slightly below the level of the brazing ring. This concentrates the heat along the length of the socket. Thus, the alloy is drawn from the relatively cool upper surface down into the interior of the socket.

Were it not for the capillary flow, additional alloy would have to be preplaced inside the socket. This would involve an extra assembly step. It would also mean additional machining steps to locate the alloy inside the joint.

Tricky Problem—Brazing a rod into a blind hole can be a tricky problem unless precautions are taken to allow entrapped air to escape during the heating cycle. If there's no escape path, internal pressure can shift the alignment of the assembly or resist the entry of the alloy.

The equipment firm solves this by leaving a fairly large clearance between the rod and socket. This allows air and water vapor to escape. Drilling out the handle with



Parts (bottom) plus the brazing ring equal a finished lever (top).

a conical-tipped drill also helps. This produces an expansion chamber at the bottom of the socket which receives any remaining entrapped air.

Removes Dirt—Before assembly, workers coat the socket and end of the rod with flux. This assures good wetting by the silver alloy. All parts are, of course, previously degreased to remove shop oil and dirt.

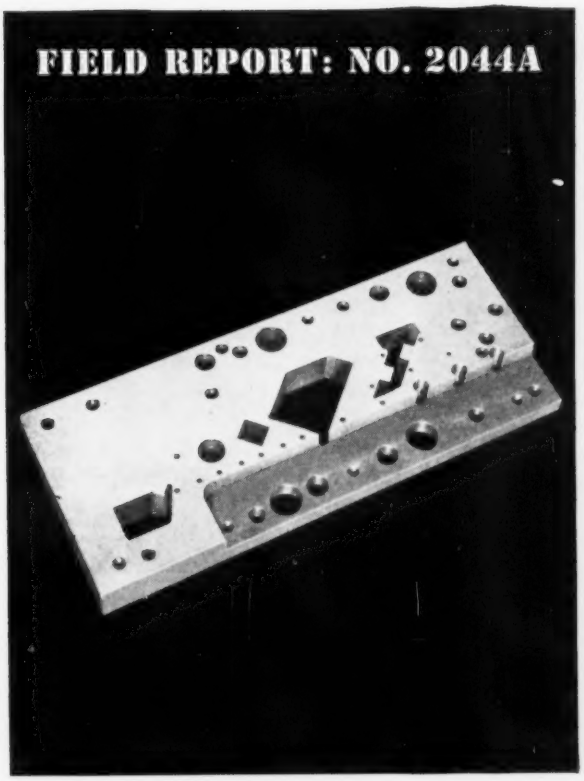
The induction heating set-up, which operates on an automatically-timed heating cycle, brazes three handles per minute. When the joint solidifies after a short cooling period, the still-warm flux is dissolved away in the rinse tank below the brazing fixture.

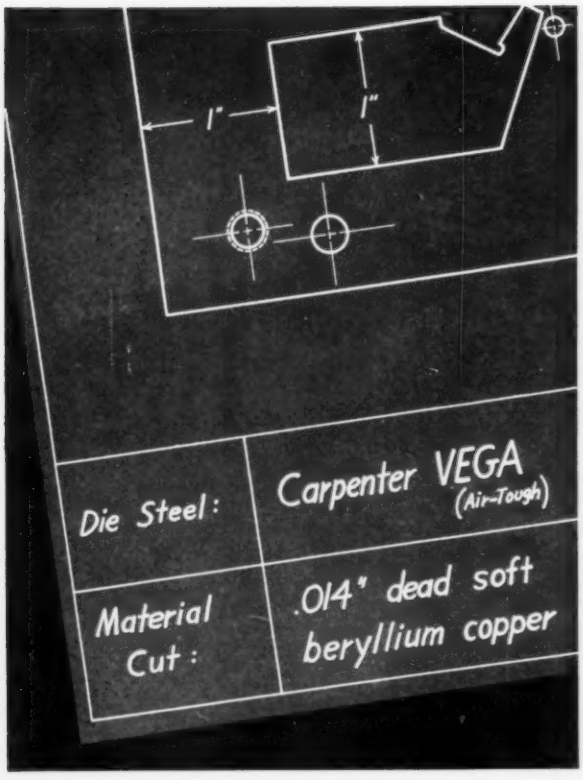
Forger Has Side Rams

Now in use at a large aluminum plant is a 4000-ton hydraulic forging press with side rams. It turns out complex aluminum shapes and parts incorporating under-cuts and back drafts.

Of the down-stroke column type design, the press is now in full production operation at Harvey Aluminum's Torrance, Calif., plant. Weighing 1,230,000 lb, the unit has an over-all height of 43 ft. The size of the press bed between positive stops is 70-in. front to back

NEW!
miller
Now equipped with a new and larger Onan 12.9 hp engine, the new Miller AEA-200-L produces a full 225 amperes of continuous rated, high cycle welding current or, 5 KW of 110/220 ac power for operation of power tools, lights, milking machines, etc., or, 1 KW of dc power.
Contractors, job weldors, farmers and many industries have shown a continuing high regard for the AEA's weatherproof ruggedness, easy portability and instant changeover versatility from ac welder to power plant to pipe thawer.
Readi-pull starter, rubber tire running gear and road trailer available as optional equipment.
Complete specifications sent on request.
". . . If it's Miller you know it's the finest . . ."
miller Electric Manufacturing Company, Inc.
APPLETON, WISCONSIN
distributed in Canada by CANADIAN LIQUID AIR CO., LTD., Montreal





WHICH DIE STEEL WOULD YOU USE

for hardening accuracy, safety in this critical die section?

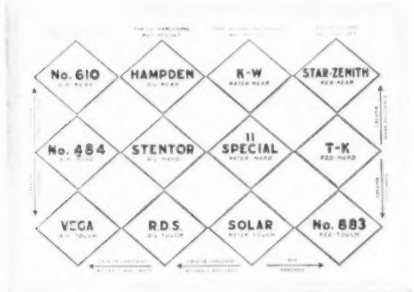
Imagine the problems involved in making and heat treating this critical die section for cutting parts from .014" dead soft beryllium copper.

Numerous cut-outs, sharp corners and thinner sections milled almost through the length of the die present man-size problems in getting the section out of heat treatment safely and accurately.

Which die steel would you be willing to trust on this ticklish job?

Here are the results reported by the diemaker, who chose Carpenter VEGA (Air-Tough) Die Steel for the job: "The section is made from a piece of VEGA 1" x 5" x 12". To hold the stock in line, we had to jig bore and hold a line of $\frac{1}{8}$" pilots almost through the entire die length. VEGA permitted us to do this and saved *many hours of work* over a die made from small sections. The first large perforating punch was also made from VEGA. After heat treatment, the punch *entered the die perfectly*. If there was any warpage at all in the punch, we couldn't find it."

This kind of performance is readily available to you by simply calling your nearest Carpenter Mill-Branch Warehouse, Office or Distributor. Large local stocks of Carpenter Matched Tool and Die Steels assure immediate delivery.



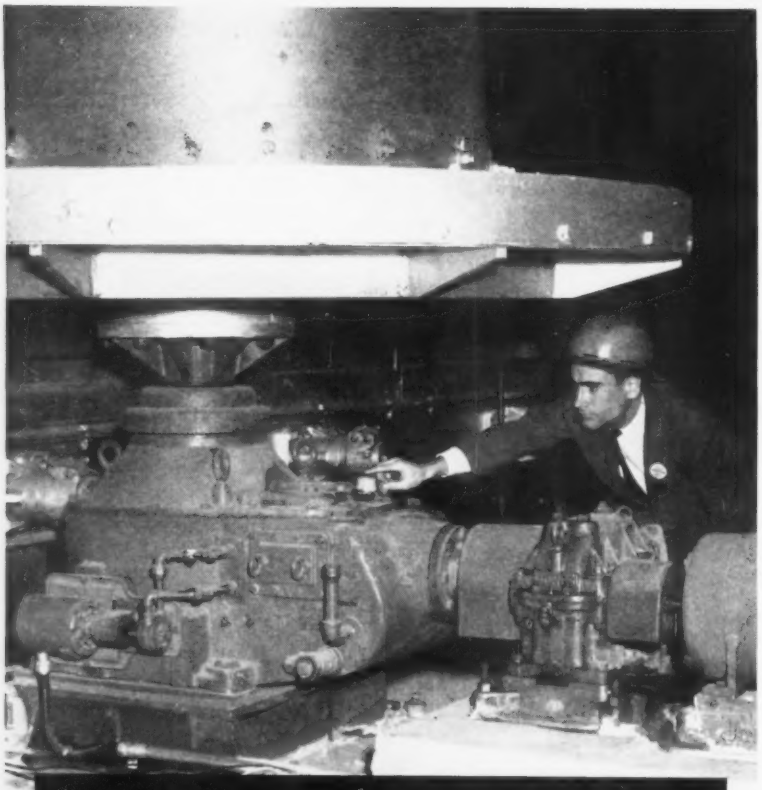
Carpenter

Matched Tool and Die Steels

The Carpenter Steel Company, 121 W. Bern St., Reading, Pa.

Export Dept.: The Carpenter Steel Co., Port Washington, N. Y.—"CARSTEELCO"

© U. S. Patent Office, The Carpenter Steel Co., Reading, Pa.



JONES FEEDER TABLES FOR LONG LIFE, LOW MAINTENANCE

This Hewitt-Robins Jones feeder table at United States Steel's Fairless Works provides a uniform supply of sinter fines from an overhead hopper to an H-R vibrating conveyor. The table is mounted directly on the output shaft of a Jones right angle reducer driven by a Jones heavy duty herringbone unit.

Over the past 25 years, the hundreds of Jones feeder table installations have averaged only 68¢ per year per unit for spare parts. This remarkable record of trouble-free operation is the result of Jones' long experience with all principal types of feeder table drives—experience that you can call upon for the right type of feeder table gearing to meet your specific needs. To find out how H-R products and services can help you, consult your classified telephone directory for the nearest H-R representative, or contact Hewitt-Robins, Stamford, Connecticut.

HR HEWITT-ROBINS

CONVEYOR BELTING AND IDLERS . . . POWER TRANSMISSION DRIVES
INDUSTRIAL HOSE . . . VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

and 90-in. left to right. Daylight capacity ranges from 45-in. minimum to 90-in. maximum. The main ram applies 4000-tons of pressure; each opposed side ram exerts a 2000-ton pressure.

Typical of the shapes forged on the press is a valve body. It has 12-in. diam flanges at each end, an 8-in. diam body between flanges, and a 5-in. diam hole punched in the center.

Cadmium Plated Parts Pass Severe Tests

Before cadmium-plated parts can get a clean-bill from one aircraft components maker they must undergo some rough testing. Quality control men do their best to wear-out, corrode or damage the parts and their coatings.

Severe methods try the items for corrosion-resistance, durability,

Following plating, a packer gets the parts ready for shipment.

plate thickness and uniformity, stress and strain. Yet, inspectors find few rejects.

Few to Find—The company, the Breeze Corp., Union, N. J., credits a liquid brightening agent with holding down non-acceptable parts. Not only does the material brighten, but it results in a faster, more uniform cadmium deposit. Moreover, platers at the firm report a minimum of fingerprinting and staining of work.

Primarily engaged in producing

aircraft engine parts, the company also turns out other components. About a year ago it began using the highly concentrated liquid brightening agent in its plating operations.

Painstaking Cleaning — The brightener, marketed by Federated Metals Div. of American Smelting & Refining Co., New York, is for barrel and still cyanide cadmium plating. The New Jersey firm adds it to its 500-gal cadmium baths every three weeks in the minute quantity of a half-pint, diluted with a pint and a half water. After painstaking cleaning and plating operations, the parts then move on to the testing ground.

One unit from each batch gets a third-degree for corrosion resistance and durability. Testers expose the part to salt water spray and high temperatures. This simulates, in a few minutes, any extreme weather conditions the items are likely to encounter in the future.

Acid Test—Then, lab testers place the part under a burette containing a solution of sulphuric and chromic acid. The mixture drips on it at a rate of about 100 drops per minute. This test accurately determines the coating's thickness. The time it takes for the acid to eat through the cadmium tells this.

Following the acid test, the item gets heated to 180 and bent simultaneously. If the plate doesn't flake, it's considered acceptable. So is the whole batch.

Refines Ore Directly

Employing a comparatively new process, a plant just opened by Wah Chang Corp., at Glen Cove, N. Y., has a capacity of 2-million lb of direct-produced tungsten a month. It uses a refining method which produces the finished product directly from the ore in practically a continuous operation.

The ore is charged into one end of the system and is discharged as pure tungsten crystals at the other end.

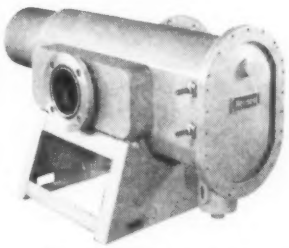
Versatile Setup—According to

Cr, Hf, Ir, Mo, Nb, Os, Pd,
Pt, Re, Ta, Ti, V, W, Zr

Get pure vacuum melts of these metals

in minutes!

The Heraeus Vacuum Arc Melting Furnace Model VA-L200C, smallest of a line of Heraeus Furnaces sold by CEC.



This Roots pump maintains low, vapor-free pressures. A motor *operating within the vacuum* drives its rotary frictionless pistons.

With this new Heraeus Arc Melting Vacuum Furnace, the VA-L200C, you can get vacuum melts in "buttons" or ingots.

You can get them of Titanium, Zirconium, Tungsten, and other metals or alloys with high melting temperatures. You can get them fast and pure.

Super-fast mechanical pump—A Roots mechanical vacuum pump pulls pressures in the furnace down to 5×10^{-4}mm Hg—*fast*.

Its throughput of 10,400 micron CFM at 10 microns easily handles sudden gas bursts encountered with certain metals.

No oil contamination—The Roots pump's frictionless rotary pistons require no oil sealing. There can be no contamination from backstreaming vapors in the system.

No crucible contamination—The Heraeus furnace has a water-cooled, copper crucible which cannot contaminate the melt.

Fixed or consumable electrodes—You may use either fixed electrodes of tungsten or metallic carbides, or consumable electrodes of the metal you are melting.

This Heraeus furnace has many other features valuable in laboratory or small-scale production, including exceptional economy—operating either under vacuum or with an inert gas atmosphere.

Heraeus of Hanau, Germany, has licensed CEC as exclusive agent for Heraeus Arc Furnaces (and Roots Pumps) in this country. Complete details in our Bulletins P8-20 and P4-28.

Consolidated Electrodynamics
Rochester Division, Rochester 3, N. Y.
formerly Consolidated Vacuum

OFFICES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

the company, the process adapts to the treatment of any kind of tungsten ore with every degree and variety of impurity.

An additional highlight of the process is its elimination of all objectionable fuel wastes. It doesn't pollute the air with smoke or fumes, or the area's land or water with soluble wastes.

Air Tacker Improves Wrapping Setup

If you wrap a lot of packages and staple them and you're tired of reloading your tacker over and over again, you've got nothing on one shipper. He had the same problems. Hand tacking guns the firm used continuously ran out of staples. And the time it took to reload them cost money. Even worse, broken strips of conventional staples often meant direct waste.

However, these problems are now non-existent to Margreen Plastics Surface Co., Jamaica, N. Y. The company has switched from hand tackers to air operated units. At the present, the firm reports a one-third greater efficiency in its wrapping of sink and counter tops. In addition, waste resulting from broken strips of staples are completely eliminated.

Staple, Stop, Load—Previously wrappers using conventional hammer tackers ran out of staples and were forced to stop 20 times more often than now. More often than not, they ran out some distance from the supply point. This meant a trip to pick up a new batch and all the detours suffered along the way.

All too often workers en-route with staples dropped the box. Of course, they broke into unusable tag-ends. Now each supply of staples is 100-pct useful. A load usually lasts several hours.

Tacker Forms Staple—The tacker now employed forms as well as drives a new staple with each squeeze of the trigger. It's made by Swingline Industrial Corp., Long Island City, N. Y.

This tacker operator can staple for hours before reloading.

Operating like a machine gun, the tacker is fed by a continuous belt of straight precut wires. Each stroke of its air powered piston strips a new wire from the belt, shapes it into a staple and drives it into the work. The magazine loads in four seconds.

YOUR PLANT CAN BE SAFER!

Specify AND INSTALL

HAWS EMERGENCY EYE-WASH FOUNTAINS

MODEL 8930: basic eye-wash fountain, one of numerous models.

Many workers use Haws Eye-Wash fountains daily — as a convenient way to thoroughly cleanse and soothe the eyes after exposure to dust, dirt or glaring heat.

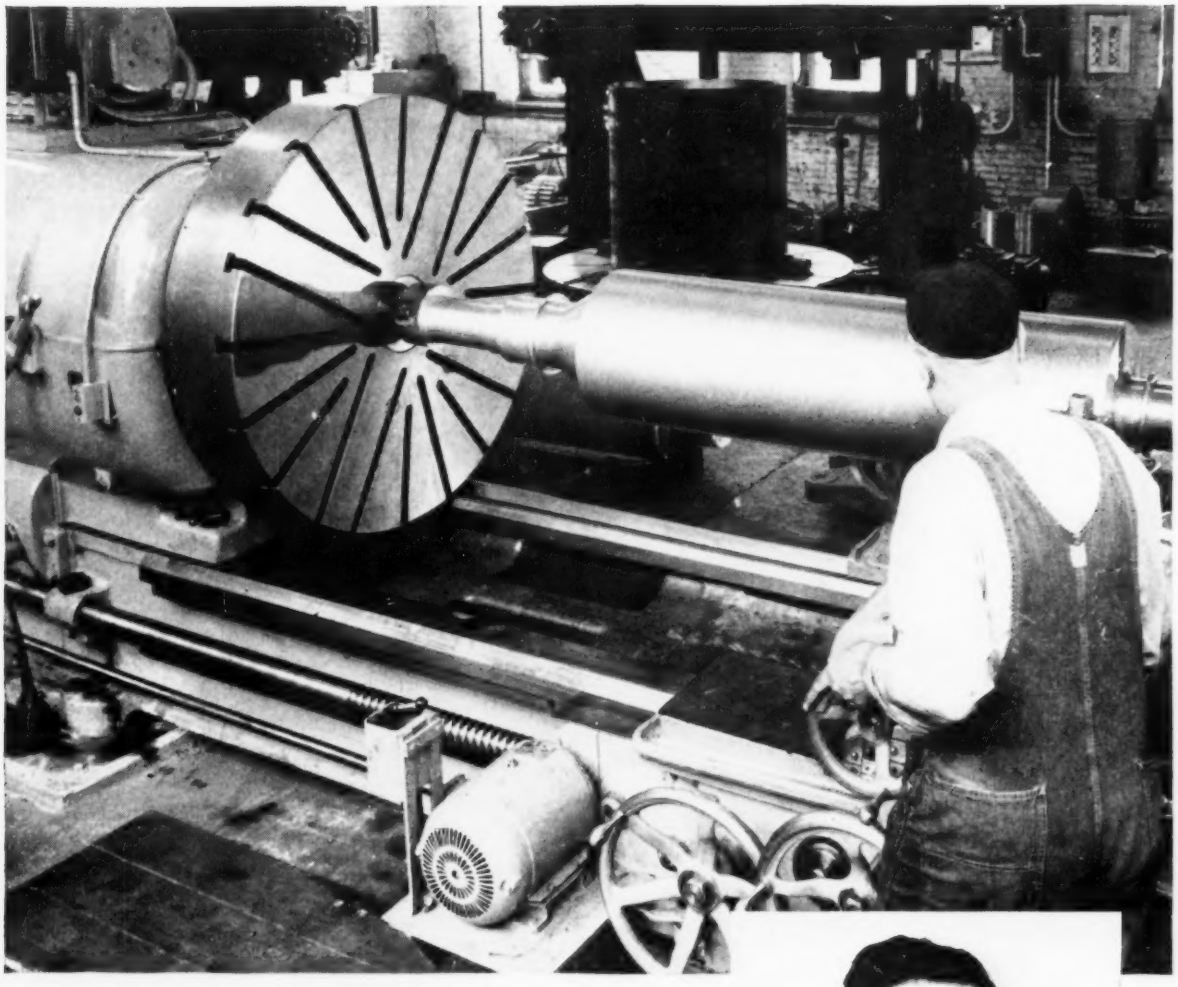
Immediate first-aid for eye-accidents! **FOR SHOPS, FOUNDRIES, LABORATORIES, FACTORIES** — wherever eyes are exposed to danger. HAWS Emergency Eye-Wash Fountains have special fountain heads that send controlled streams of water into the eye, flushing away chemicals or other foreign particles — saving vital moments until medical aid arrives, possibly avoiding permanent injury. A complete safety installation includes the HAWS Eye-Wash Fountain combined with HAWS Drench Shower unit for contaminated bodies. **Protect your workers!**

WRITE TODAY FOR FREE ILLUSTRATED FOLDER

HAWS DRINKING FAUCET CO.

1443 FOURTH STREET (Since 1909) BERKELEY 10, CALIFORNIA

Manufacturers of complete lines of drinking fountains, faucets, electric water coolers, parts and accessories.



"Standard Steel castings and forgings play an important role in the 'New Look' at Vulcan Iron Works"

We at Standard Steel Works feel justly proud of the fact that our castings and forgings play "an important role" in both the quality and service which our several hundred customers are rendering to *their* customers. Vulcan Iron Works is typical of our customers—it consistently meets the quality and delivery requirements of its customers, and knows it can rely on us to help maintain its leadership as rotary kiln manufacturers.

Why don't you present your next forging or casting requirements to us. You too will find that when we at Standard Steel Works say that we give equal emphasis to quality *and* service to our customers, we mean what we say. Write Dept. 1-G.

"When the new management took over at Vulcan, it immediately recognized the importance of better customer relations through faster deliveries and lower selling costs. Standard Steel's prompt service and quality products are helping Vulcan realize these objectives," says Mr. William J. Davis, plant superintendent, Vulcan Iron Works, Wilkes-Barre, Pa.

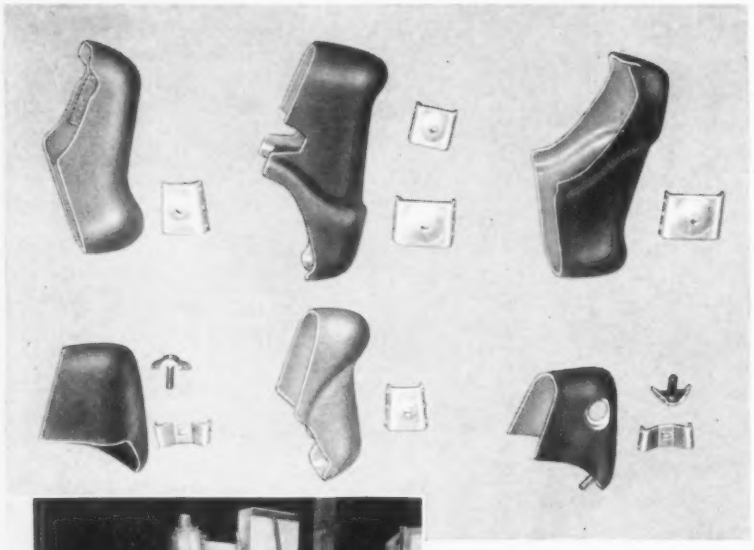
Standard Steel Works Division

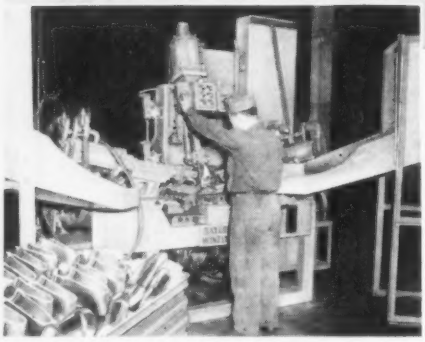
BALDWIN · LIMA · HAMILTON

BURNHAM, PENNSYLVANIA

Rings • Shafts • Car wheels • Gear blanks • Flanges • Special shapes

1 specially-tooled T-W welder assembles 15 bumper guards





This custom-built projection welder assembles 15 different models of auto bumper guards at a rate of 300 per hour. One or two mounting brackets are projection-welded on both sides of each guard. Simplified tooling changeover has cut down time 50%.

Specially-designed resistance welders speed assembly of many products that are similar — yet different. Custom tooling provides the answer. Designed for rapid changeover, special tooling reduces down time and lowers unit cost. It also permits economical modification for producing redesigned models. The result is a savings in capital investment and operating costs. For information on reducing your assembly costs now — and year after year, call the nearest Taylor-Winfield office, listed below.

The TAYLOR·WINFIELD Corporation
WARREN, OHIO

ELECTRIC RESISTANCE AND ARC WELDING MACHINES

Sales and Service

CHARLOTTE • CHATTANOOGA • CHICAGO • CLEVELAND • DALLAS
DAYTON • DENVER • DETROIT • LOS ANGELES • PHILADELPHIA
PORTLAND, OREGON • SEATTLE • ST. LOUIS • STAMFORD
OAKVILLE AND WINDSOR, ONTARIO

TECHNICAL BRIEFS

Tests Titanium For Hydrogen Content

During metal refinement, small quantities of oxygen, hydrogen, carbon and nitrogen are picked up by the metal. Minute amounts of these impurities may, of course, produce marked effects upon the final properties of the material.

Good strength combinations are possible with these interstitial alloying elements. However, other properties such as impact and notch-toughness suffer. For example, even as little as 0.0125-pct hydrogen makes certain alloys of titanium too brittle for forming operations.

Tests Samples—One large metalworking firm, Glenn L. Martin Co., Baltimore, is greatly concerned about hydrogen in its titanium. It regularly tests samples with a vacuum fusion gas analysis apparatus. This equipment, developed by National Research Corp., can also determine the amount of various basic elements in other metals, too.

Using a magnet, a researcher moves a sample to furnace.

Based on notched stress-rupture tests, the Air Force specifies a maximum hydrogen content of 150 parts per million in Ti-8Mn sheet and 125-ppm in bar and forging stock used in military aircraft. To meet these specifications, Martin keeps a close check on its titanium

products. Occasionally, a ful analysis is made to determine the amounts of carbon, nitrogen and oxygen, too.

What It Uses—Apparatus used consists essentially of a Lepel high frequency power source, an induction heating furnace for driving off the gases from the metal sample, a collecting device for catching the gases, and a McLeod gage for reading their volume and pressure.

Samples of titanium are weighed to 0.0001 gram accuracy. They are placed in the furnace loading arm. Temperature is determined by an optical pyrometer visual indicator which measures intensity of radiation. About 1400°C drives off the hydrogen gas. This gas is collected. Its pressure and volume are measured in the McLeod gage. These readings are recorded. The amount of hydrogen is calculated by formula from these readings and the weight of the sample.

Iron Cement Supports 2500 Tons 60 Years

Next time you wonder about iron cement's durability, recall this: Some 60 years ago a builder used some iron cement on a large bridge —and it's still in good shape, supporting 2500 tons of structure.

Construction work, recently completed by Terry Contracting Co. on the Third Avenue Bridge in New York City, involved replacing most of the upper span, while the underpinning remained substantially the same.

The bridge is suspended in the middle by a turntable. This rotates on 80 wheels sandwiched between two steel 60-ft diam flanges. In order for the bridge to turn properly and then reclose in perfect alignment, absolute uniformity of pressure is required between these wheels and the flange surfaces.

Original Work—At the time of original construction in 1898, it was impossible to machine these tremendous flanges accurately enough for the desired uniformity. So, during initial alignment of the

UNMATCHED SIMPLICITY

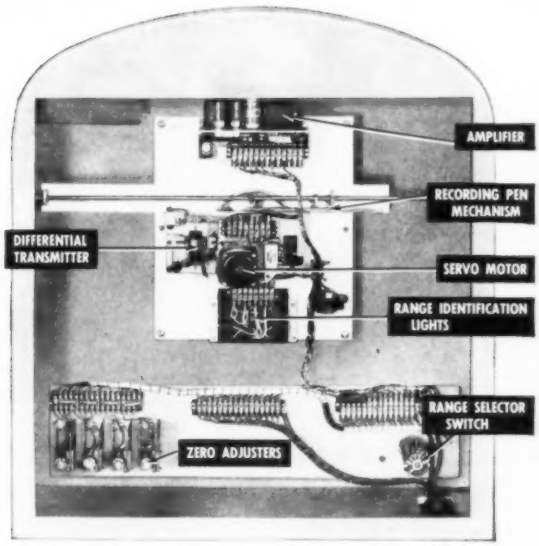
plus

Ease of Operation & Accuracy

TINIUS OLSEN

ElecTmatic

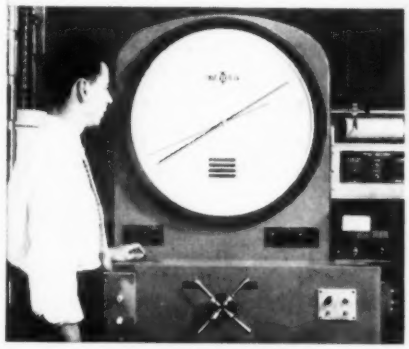
TESTING MACHINES



Rear view of the Olsen SelecTrange Indicating System, used in all ElecTmatic testing machines.

For functional simplicity, sensitivity, speed of response and ease of operation, the SelecTrange Indicating System used in all Olsen ElecTmatic testing machines is years ahead of the field. This patented electronic null balance system provides a minimum of 100 to 1 ratio of testing ranges and assures foolproof accuracy. By flipping the selector switch, the range can be changed at any time without interrupting the test. When an Olsen load cell is used, range capacities as small as 50 grams represent full scale on the large color coded dial.

Positive testing speeds even under load and unlimited stroke are among the many other features that make Tinius Olsen ElecTmatics your best testing machine buy.



Get the facts from Olsen.

Details given in new 40 page Bulletin 54. Write today for your free copy.

Trademark Reg. U.S. Pat. Off.

TINIUS OLSEN

TESTING MACHINE COMPANY

2120 EASTON ROAD • WILLOW GROVE, PA.

Testing and Balancing Machines

QUANTITY PRODUCTION OF GREY IRON CASTINGS

ONE OF THE NATION'S LARGEST AND MOST MODERN PRODUCTION FOUNDRIES

ESTABLISHED 1866
THE WHELAND COMPANY
CHATTANOOGA 2, TENN.

TFC
ORNAMENTAL IRON CASTINGS

MORE THAN 400 DESIGNS for making up ornamental iron grille work, columns, rails. A design for every style of architecture. Complete range of standard sizes.

Write for:
32-Page Catalog

Tennessee Fabricating Co.
Dept. IA757, Memphis 6, Tenn.

Please send 32-page catalog: "Everything for the Ornamental Iron Shop."

*Name*_____
*Company*_____
*Address*_____
*City*_____ *State*_____

upper span, steel wedges were used to establish the desired flange pressure on the turntable wheels.

An iron cement, made by Smooth-On Mfg. Co., Jersey City, N. J., was packed into the ½-in. space between flange and structure. This iron cement expands uniformly on hardening. When the wedges were removed it supported

After application, this iron cement expands uniformly.

the entire weight of the structure in perfect alignment. This is about 2500 tons without traffic load.

Inspection by construction engineers now working on the bridge discovered that only about 5 to 10-pct of the original iron cement required replacement after 60 years of service. So, they called in the original supplier to furnish the required 500 pounds of the material, still being made in their Jersey City plant. Repairs completed, the bridge is now back in service, entirely supported by iron cement.

Foundry Clinics

In Boston the Hunt-Spiller Co., one of the oldest operating foundries in the U. S., has teamed up with a college foundry professor and consulting firm to launch a unique series of 4-day foundry clinics for engineers and purchasing agents. The Boston session this September will have as leading speaker Prof. Howard F. Taylor, Massachusetts Institute of Technology foundry department head and staff member of Metallurgical Associates of New York. Others include Al Stack, consultant and former General Electric metallurgist and Charles Walton, Gray Iron Founders Society technical director.

Technique Simplifies Materials Analysis

Spectrochemical determination of the elements in samples of unknown basic composition is now a little easier. Thanks to a recently developed technique this once time-consuming job has been simplified considerably.

Known as the "carbon-matrix" method, the process employs a graphite electrode. This creates the necessary dilution. A known, small amount of germanium is also used. This produces a reference intensity in the spectrum. The technique is a result of work at United States Steel Corp.'s research center in Monroeville, Pa.

Basic Facts — In making any spectrochemical analysis, it's necessary that the instruments be calibrated with materials of the same basic composition, or matrix, as the samples to be analyzed.

When these samples are of an unknown basic composition, it's difficult to figure the concentration of the various elements present. This is because there is a different wavelength for each element. Researchers measure each's concentration by the intensity of light of that wavelength emitted when the sample is excited in an electrical discharge.

No Mat; No Answer — Light intensity changes with the matrix sample. Calibrations prepared for one material may not apply to another. So, when the matrix is unknown, the spectrochemical method cannot be applied since the calibration cannot be determined.

The usual way to overcome this difficulty is to mix the sample with some standard substance for which calibrations can be prepared. A

Why designers specify FLEXLOC self-locking nuts

Where products must be tough . . . must stand up under vibration, shock and abuse . . . designers specify rugged, reliable, precision-built FLEXLOC self-locking nuts as fasteners.

HERE'S WHY:

FLEXLOC locknuts are strong: tensile strengths far exceed accepted standards. They are uniform: carefully manufactured to assure accurate, lasting spring tension in the flexible locking collars. And they are reusable: rough screw threads, repeated removal and replacement, frequent adjustments will not affect their locking life.

Standard FLEXLOC self-locking locknuts are available in a wide range of standard sizes and materials, to meet the most critical locknut requirements. Your authorized industrial distributor stocks them. Write us for complete catalog and technical data. Flexloc Locknut Division, STANDARD PRESSED STEEL CO., Jenkintown 17, Pa.

FLEXLOC® LOCKNUT DIVISION

STANDARD PRESSED STEEL CO.

SPS

JENKINTOWN PENNSYLVANIA

procedure involving dilution of up to 800 times the unknown sample with varying amounts of germanium dioxide and then by a mixture of equal amounts of graphite and copper oxide in the ratio of 1 to 40 has given satisfactory results. By using copper as the internal standard and analyzing in triplicate with a series of standards, an overall accuracy of ±10 pct is achieved.

Old Way Good, But — This procedure gives satisfactory results. However, it's complicated and sometimes quite lengthy. Also, when the sample is very small, it's difficult to prepare a homogeneous mixture with the diluent. Many of the samples submitted to U. S. Steel's research laboratory weigh less than a few tenths of a milligram.

The carbon-matrix technique is, in effect, a simplified method of diluting the sample with a standard substance. A tiny amount of the sample is placed in a small crater drilled into the end of a graphite electrode. When the electrode plus the sample is placed in the electrical discharge, the necessary dilution with a standard substance is performed by the carbon of the electrode.

Here, a technician readies an "unknown" for analysis.

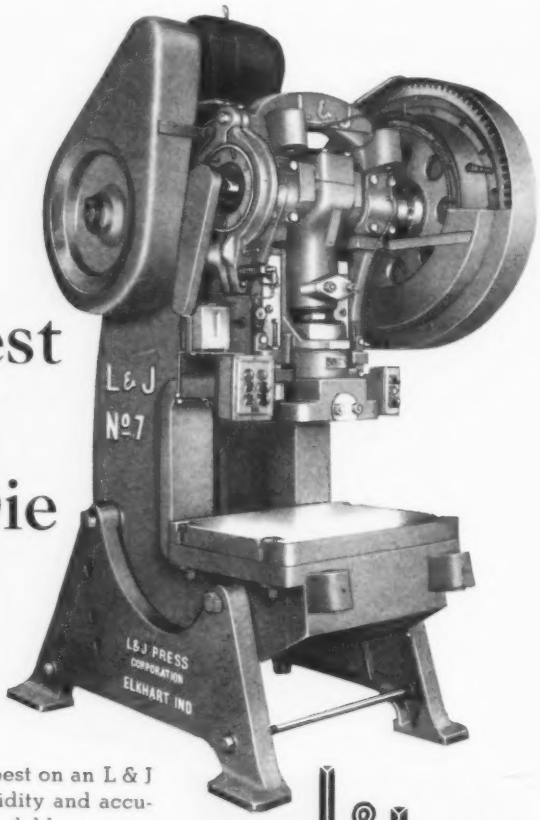
Men Come; Men Go; Iron Puddling Goes On

In order to meet a growing demand for wrought iron, Lockhart Iron & Steel Co., Pittsburgh, is expanding its hand iron puddling operations. Production processes at the company's McKees Rocks plant now include hand puddling and busheling of wrought iron, forging, and the rolling of wrought iron billets, bars and shapes.

The above paragraph should be dated 1890. It was then that the hand iron puddling setup went into use. And it's still working, with no intention of shutting down for good.

A Look Back—Recently some 500 executives and customers of the firm toured the plant for a glimpse of what is the last installation of its type still producing in this country. At this time, the firm emphasized that it is not discontinuing its production of wrought

Gets the Best out of Any Die



Any die will do its best on an L & J No. 7 Press. The rigidity and accuracy of these dependable presses provide accurate die alignment that minimizes wear, and insures precision stampings. They also enable dies to produce maximum output for these presses are efficient, versatile and require but minimum maintenance. If productivity, tolerances and die life are important to you, then you'll be interested in the complete story of L & J No. 7 presses.

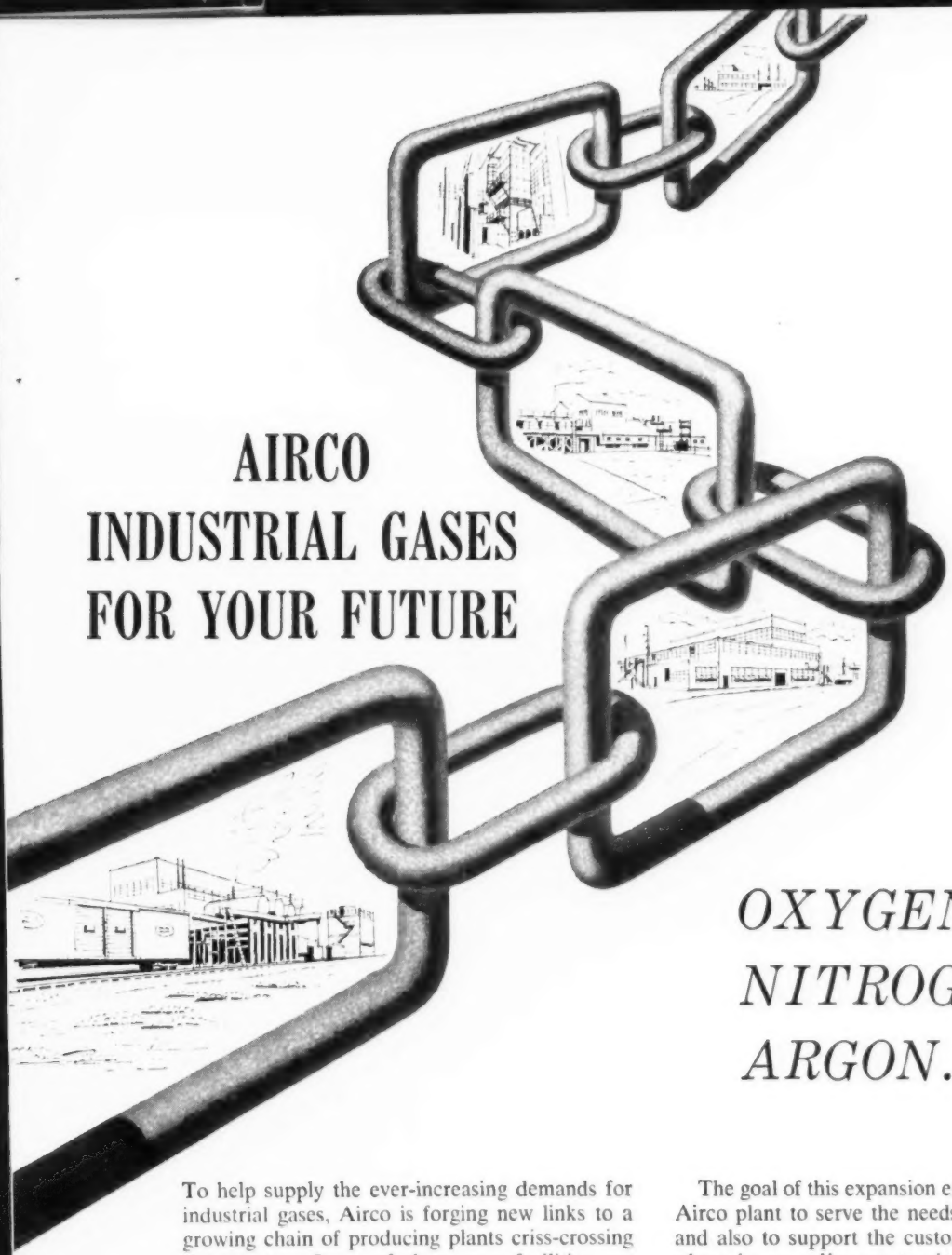
NO. 7 L&J PRESS

Specifications

Capacity — 75 tons. **Stroke** — 4", special max.—8". **Speed**—42 s.p.m. (85 s.p.m., non-geared). **Throat Depth** — 13½". **Die Space**, standard — 14", special max. — 23". **Bolster Plate** — 36" x 26" x 3". Also available in non-geared model. Air clutch optional at extra cost.

WRITE FOR CATALOG of 24 geared and non-geared O.B.I. Punch Presses of 14 to 90 ton capacities. Also, 20 to 100 ton Double Crank, High Speed, Straight Side Presses.

L & J PRESS CORPORATION 1623 STERLING AVE. ELKHART, INDIANA



AIRCO INDUSTRIAL GASES FOR YOUR FUTURE

OXYGEN...
NITROGEN...
ARGON...

To help supply the ever-increasing demands for industrial gases, Airco is forging new links to a growing chain of producing plants criss-crossing the country. Some of these new facilities are already in operation, others will be in operation by the latter part of this year. This multimillion dollar construction program will greatly increase our capacity to supply your present and future requirements for oxygen, nitrogen, argon and other gases.

The goal of this expansion effort is to gear each Airco plant to serve the needs of its own area—and also to support the customers of any Airco plant in an adjacent territory by providing deliveries of the industrial gases needed in the quantities required.

The services Airco offers its customers are well worth your consideration. Let your nearest Airco office help plan the most economical gas supply for your needs and the most efficient way to use it.

AT THE FRONTIERS OF PROGRESS YOU'LL FIND...

AIRCO®

Offices and dealers in most principal cities

AIR REDUCTION SALES COMPANY

A division of Air Reduction Company, Incorporated
150 East 42nd Street, New York 17, N. Y.

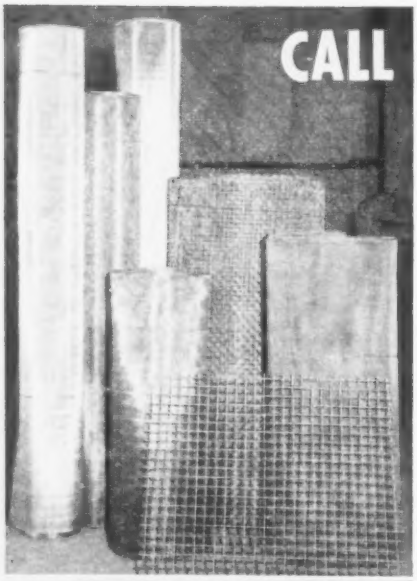
On the west coast—
Air Reduction Pacific Company

Internationally—
Airco Company International

In Cuba—
Cuban Air Products Corporation

In Canada—
Air Reduction Canada Limited

Products of the divisions of Air Reduction Company, Incorporated, include: **AIRCO** — industrial gases, welding and cutting equipment, and acetylenic chemicals • **PURECO** — carbon dioxide — gaseous, liquid, solid ("DRY-ICE") • **OHIO** — medical gases and hospital equipment • **NATIONAL CARBIDE** — pipeline acetylene and calcium carbide • **COLTON** — polyvinyl acetate, alcohols, and other synthetic resins.



Cambridge

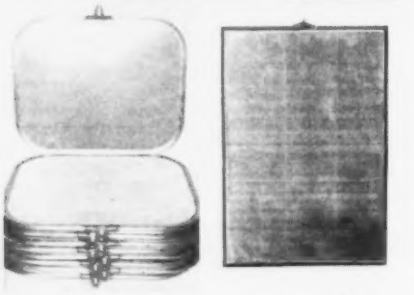
for

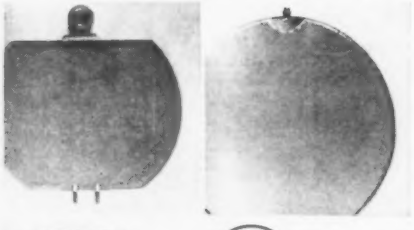
INDUSTRIAL WIRE CLOTH

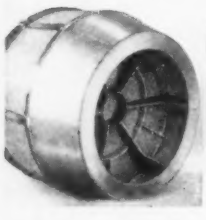
in BULK

or

FABRICATED PARTS







COMPLETE LINE

Nine weaves ranging from the finest to the coarsest, in any metal or alloy.

ACCURATELY WOVEN

Individual loom operation and careful inspection just before shipment assure accurate mesh count and uniform mesh size.

PROMPTLY DELIVERED

Most bulk orders are shipped immediately from stock. If your needs are for less frequently used types, we'll schedule our looms to fill your order without delay.

In fabricating parts . . . filter leaves, strainers, sizing screens . . . we'll work from your prints or draw up prints for your OK.

LET US QUOTE on your next order for wire cloth. Call your Cambridge Field Engineer—he's listed under "Wire Cloth" in the Yellow Pages of your 'phone book or write for FREE 80-PAGE CATALOG and stock list.

The Cambridge Wire Cloth Co.

WIRE CLOTH | METAL CONVEYOR BELTS | SPECIAL METAL FABRICATIONS

Department A, Cambridge 7, Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

iron, though it is finding a waning market from the standpoint of industrial demand. Another serious problem is the replacing of skilled workers.

Lockhart officials point out that visitors are being invited to the plant because of its historical significance. Hand puddled wrought iron made at the plant looks about like any other iron to the eye. However, it has notably different properties.

Its Makeup — Hand puddled wrought iron contains layers of iron which possess minutely and uniformly distributed slag stringers. It's a fibrous material, like hickory wood, as opposed to steel's crystalline nature. The slag stringers help stop spreading of surface cracks and act as a barrier to corrosion. Its fibrous character lets wrought iron stand repeated stresses and shock, much like a cable does. In addition, the slag in it is a natural flux for welding.

Out comes a wrought iron sponge ball from the puddling furnace.

One of the most important demands for wrought iron in the past was for use in steam locomotive components. Now, one of its biggest applications is in making fine welded crane and sling chains.

Replaces Two Presses

Substantially reducing handling costs is a setup whereby a single hydraulic press brake replaces two

independent punch presses. The unit, in service making file cabinets, is employed by Acme Visible Records, Crozet, Va.

The one press brake, using progressive dies, handles blanking and

Using progressive dies, this press brake blanks and forms.

forming operations. It can also be set up to use four independent dies at one time. The hydraulic unit is made by Pacific Industrial Mfg. Co., Oakland, Calif.

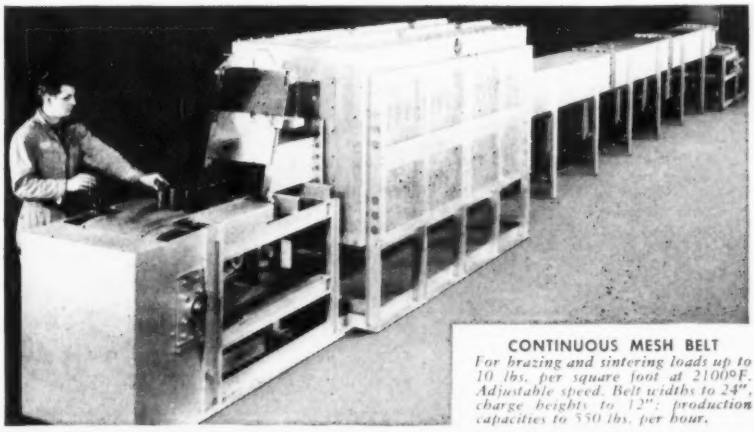
NEW BOOKS

"Solid State Physics," by A. J. Dekker, presents a general introduction to the physical properties of solids. It breaks into two parts: (1) atomic structures and (2) electronic properties. An elementary knowledge of physics and quantum mechanics is all readers need to make use of the book. $9 per copy. Prentice-Hall, Inc., 70 Fifth Ave., New York 11.

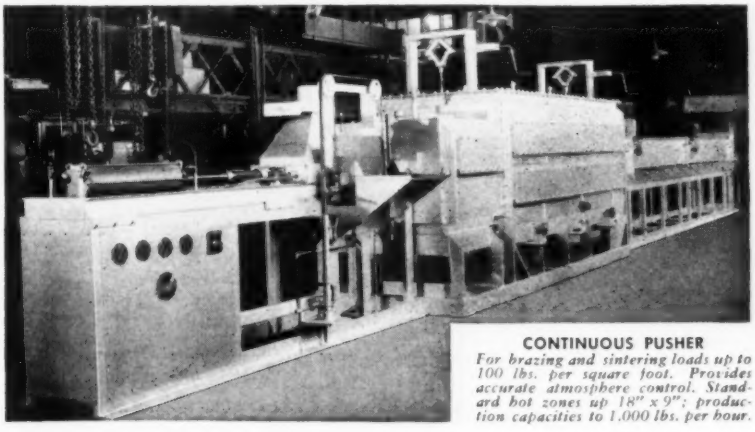
"Materials Handling Equipment," by D. O. Haynes, deals with two subjects vital to metalworking. These are: handling and money. It tells how to get more from the former with less of the latter—in a complete form as only a book can. A key point put across is this: Former cost-cutting opportunities have leveled off. Labor costs are high and uniform; raw materials, too, cost all manufacturers about the same. But by im-

HARPER CONTINUOUS BRAZING AND SINTERING FURNACES

give you { PROCESS FLEXIBILITY
PRODUCT UNIFORMITY
HIGHER PRODUCTION



CONTINUOUS MESH BELT
For brazing and sintering loads up to 10 lbs. per square foot at 2100°F. Adjustable speed. Belt widths to 24", charge heights to 12"; production capacities to 550 lbs. per hour.



CONTINUOUS PUSHER
For brazing and sintering loads up to 100 lbs. per square foot. Provides accurate atmosphere control. Standard hot zones up 18" x 9"; production capacities to 1,000 lbs. per hour.

If these are the three major qualities you want in a controlled atmosphere brazing or sintering furnace, you will find them in a Harper Electric Continuous Furnace. Process flexibility is the result of multiple zone heat control, variable speed drive, and properly applied control instrumentation.

Once the desired conditions have been established, you will obtain complete product uniformity. Conditions outside the furnace being equal, your brazed joints or sintered compacts will be identical hour after hour, week after week.

You will get up to 50% higher production from a Harper Electric Furnace with silicon carbide elements* than from comparable size furnaces using other elements. Another important advantage of these high-power elements is that they can be replaced in an emergency without complete shut-down.

Consider the brazing or sintering furnace designed for production. Write for further information today to Harper Electric Furnace Corp., 49 River Street, Buffalo 2, New York.

*Nickel chromium elements also available for lower temperature changes.

HARPER
ELECTRIC FURNACES
For Continuous Brazing, Sintering, Wire Annealing, Bright Annealing, Annealing, Forging and Research

proving handling methods, firms can still improve their competitive positions. The author attempts to spark cost-cutting ideas in readers' minds by analyzing practically every type setup in this field. Over 2200 illustrations help. $17.50 per copy (pre-publication price: $15). The Chilton Co., 56th & Chestnut Sts., Philadelphia 39, Pa.

"Contributions to Titanium Metallurgy," contains data on one firm's work. Three papers are contained covering: (1) reducing titanium chloride by solutions of alkalinous metals in their fused chlorides, (2) structure of titanium deposits formed in electrolytic cells using fused alkali chloride baths, and (3) the chemistry of the reduction of titanium chloride in fused alkalinous chloride by solutions of alkalinous metals. Chicago Development Corp., 5810 47th Ave., Riverdale, Md.

"The Dynamics of Capitalism," by J. T. Wendzel, looks over our economic system with a critical eye. Businessmen might find it interesting. 175 pp. $3.50 per copy. Harper & Bros., 49 E. 33rd St., New York.

"Steelplant Refractories," by J. H. Chesters covers the subject in research, testing and development. It's a future-looking text on refractories for coming processes, as well as today's units. Though considerable progress has been made in making new materials, the author points out, even these will be "severely tested and often found wanting in the forthcoming struggle between the openhearth furnace and the recently developed pneumatic process employing tonnage oxygen. To this rivalry must be added the competition expected from bigger arc furnaces, which are likely to become substantial producers even of common steels as atomic energy becomes more generally available." 728 pp. $12 per copy. The United Steel Companies, Ltd., 17 Westborn Rd., Sheffield 10, England.

"Procedure Handbook of Arc Welding Design & Practice," is in its eleventh revision. It covers the subject from virtually every standpoint. 841 pp. The Lincoln Electric Co., Cleveland 17, Ohio.

"Industrial Hygene," reports on the 21st Annual Meeting of the Industrial Hygiene Foundation. It includes technical papers on management, legal, engineering, chemical-toxicological subjects, etc. 281 pp. Industrial Hygiene Foundation of America, Inc., Mellon Institute, 4400 Fifth Ave, Pittsburgh 13, Pa.

"Protective Painting of Structural Steel," reviews experiments in modern methods for halting atmospheric corrosion. 102 pp. $4.50 per copy. The Macmillian Co., 60 Fifth Ave., New York 11.

Silicone rubber compounds developed by Stalwart engineers can withstand temperature extremes from −130° to +600° F.

Extensive use of Stalwart silicone rubber parts by the aircraft industry is proof of their lasting resiliency, greater tensile strength.

Unusual thermal stability of Stalwart silicone rubber parts makes them suitable for a wide range of industrial and domestic applications.

When temperatures go up . . . up as high as 600° F. . . . dependable Stalwart silicone rubber parts stay on the job without losing any of their physical, chemical or dielectric properties. But that is only half of the story. Elimination of awkward metal fabrications, simplification of design, time and labor saving manufacturing economies . . . these are just a few of the many other advantages manufacturers everywhere are realizing with Stalwart precision-made silicone rubber parts.

Call upon Stalwart's staff of engineers to help find money-saving answers to your special rubber parts problem. Stalwart's modern production facilities can provide molded, extruded, automatic and hand cut parts to customer specifications in realistically-priced production or job-lot quantities. For the complete Stalwart story, write for Bulletin 56-SR-3.

STALWART RUBBER COMPANY

Manufacturing facilities in Bedford, Ohio and Jasper, Georgia. Main offices located at 164 Northfield Road, Bedford, Ohio

7672-SR

Inland Ledloy*...the original leaded steels

Nearly twenty years ago, Inland started a metalworking revolution with its discovery of how to add lead to steel. The first experimental heat and the first production heat of leaded steels were made in Inland furnaces. Since then, by unending probing, refining, and perfecting, Inland has learned the secrets of making fine leaded steels. Today, Inland, the largest producer of leaded steels, sets the standards with which all other free machining steels are compared.

These Inland Quality Control men are checking the results of a "sweat-test." Samples of billets of Ledloy are baked in an electric oven. Then, the minute drops of lead which rise to the surface are checked for uniformity of size and dispersion. Billets that do not meet Inland's rigid standards are rejected. It is one of many controls Inland uses to make certain your Ledloy is the finest leaded steel made.

Because of Inland's long history in making leaded steels, technicians like these know . . . *by experience* . . . that your Ledloy will be right. Inland standards, worked out through many years, are your assurance that the Ledloy represented by these samples will be another shipment of the world's most machinable steels.

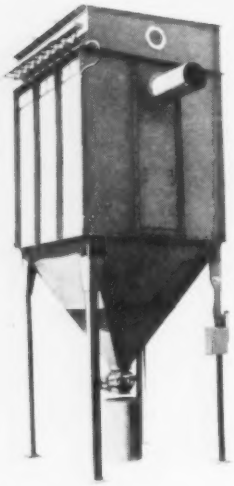
Experience makes Inland Ledloy better

INLAND LEDLOY is sold in cold drawn form, under various trade names, by leading cold drawers and steel warehouses from coast to coast.

INLAND STEEL COMPANY *38 South Dearborn Street • Chicago, Illinois Sales Offices: Chicago, Milwaukee, St. Paul, Davenport, St. Louis, Kansas City, Indianapolis, Detroit, New York • *registered trade name of Inland Steel Company, pioneer in the development of leaded steels.*

New Production Ideas

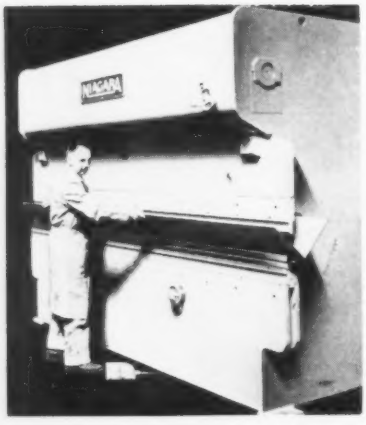
Equipment, Methods and Services



Dust Collector Design Keeps Maintenance Down

Using no internal moving parts, this dust collector cleans and filters dust-laden gas streams at constant pressure. Instead of mechanical shaking devices, etc., the unit employs a new idea in continuous filter cleaning. And the absence of moving parts means less maintenance worries and costs. The collector consists of varied numbers of cylindrical filter elements. These are either 4 or 6-ft long, enclosed in a dust-tight housing. Dust-laden air enters the housing through a side inlet; an air circulating system withdraws clean air from the inside of the filter elements. A major portion of the dust goes directly from the inlet down to a bottom discharge on the collector housing. The rest of the dust stays on the outside surfaces of the filters. Since this dust buildup cuts the filter's efficiency, it's necessary to clean it periodically. This is done by an automatic high-pressure air device. Collector capacities range from 400- and 600-cfm units to 3350- and 500-cfm ones. (Pulverizing Machinery Division, Metals Disintegrating Company, Inc.)

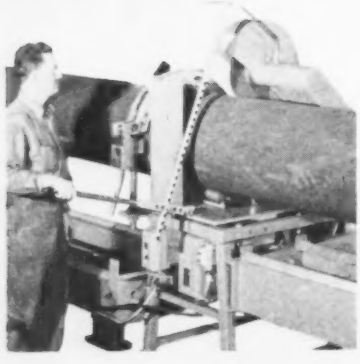
For more data circle No. 45 on postcard, p. 134



Press Brake Boasts Several Power Features

Streamlining and power features are the key assets of this press brake. It employs a power brake, power clutch and power treadle which all promise smooth action and instant response for the unit. The electro-pneumatic friction clutch and brake work together, permitting the ram to be inched down smoothly and softly. And the portable power treadle makes things more convenient for the operator. Featuring totally enclosed construction, this press brake presents a trim, sleek appearance. The entire drive is inboard, including its motor, belts, flywheel, clutch, brake, gears —even connections, pitmans and the ram adjustment mechanism. Nothing protrudes to take up floor space, interfere with crane service, block lighting or endanger safety. It comes in 30 and 50-ton models, over-all bed lengths of 6 to 12 ft. (Niagara Machine & Tool Works.)

For more data circle No. 46 on postcard, p. 134



Machine Cuts 40-ft Long, 20-in. Diam Pipe

This newly designed machine is capable of cutting 20-in. diam (and larger) pipe with a cut surface finish suitable for gasket face use. It handles a 40-ft (double random length) of the large diameter pipe with wall thicknesses of 7/8-in. or heavier provided the first cut is 5 ft or more. The controls for moving the chucking drive up and down for centering are hydraulic; so is the locking system which holds the chuck in its proper length position. Movement of the chucking device back and forth, to control the length of the cut piece, is electrical. The rotation and cutting units are also electrical. Though this rotary cutting unit's capacity is considerable, larger sizes are available. (Wallace Supplies Mfg. Co.)

For more data circle No. 47 on postcard, p. 134

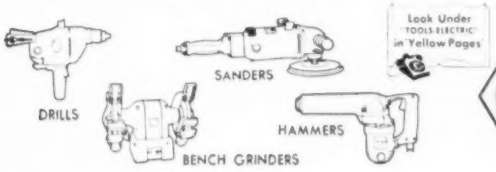
Faster work, fewer rejects with B&D Power-Speed control!

POWER-BUILT Black & Decker Scruguns® drive with precision from finger-lightness to wrench-tightness!

When you team up B&D Scruguns and Power-Speed Control, work goes faster because you choose the correct speed and tension for every assembly job. And you have fewer rejects because this unique combination prevents burring screw heads, stripping threads, shearing screws and marring surfaces.

The compact, lightweight B&D Power-Speed Control is completely portable, easily mounted. Its calibrated precision dial gives instantaneous change of torque and speed. It handles as many as three B&D adjustable clutch Scruguns.

Whatever your application, or the type of driver you are now using, ask your B&D distributor for a demonstration of this precise control—impossible with other power drivers! Or write for free catalog No. 10 to: THE BLACK & DECKER MFG. CO., Dept. 0907, Towson 4, Md. (In Canada: P. O. Box 278, Brockville, Ont.)



Leading Distributors Everywhere Sell

Black & Decker®

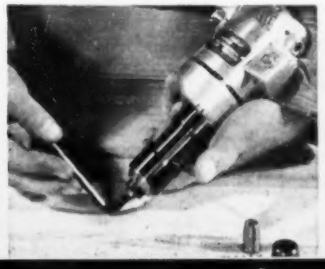
Quality Electric Tools—Power-Built to Last

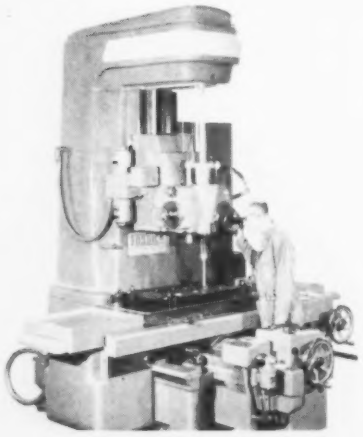
POWER-BUILT BY B&D, every Scrugun motor is tailor-made in our own plant for the tool it drives, for peak performance and longer service.

CHOICE OF 3 CLUTCHES, positive, single adjustable and double adjustable. Simple external adjustments stay put. No creeping of bit or socket.

EASY HANDLING B&D Scruguns are lightweight, compact, perfectly balanced. New piggy-back reversing switch is located for fast, easy control.

SWIFTY SERVICE SAYS, "Even the best tools eventually show signs of wear—need repair. Give 'em B&D Factory Branch *Service* for top performance."

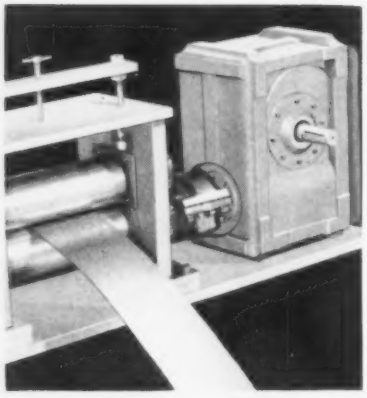




Tapes Control Jig Borer on Short, Medium Runs

If your skilled jig borer operators are spending all their time on production runs and you'd like them doing custom jobs, take a look at this. It's an automated, tape-controlled jig borer. The machine is practical for medium, even small, production runs. It works to close tolerances without special jigs and fixtures. In operation, a worker simply loads the part to be machined on the jig borer table. He presses a button which positions the table to ±0.0001-in. He then sets the spindle speed and feed according to values punched in the tape. Tapes are prepared in the engineering department where the most efficient order of operations is programmed. Dimensions from part prints are punched directly into the tape without the need for coding since a decimal tape punch is used. The jig borer provides 16 speeds from 30 to 1800 rpm controlled by electro-magnetic clutches. (The Fosdick Machine Tool Co.)

For more data circle No. 48 on postcard, p. 134



Roll Feeds Accurately at 1000 Strokes a Minute

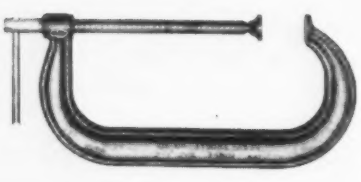
Here's a cam indexed roll feeder that gives accurate performance at 1000 strokes per minute. A roller gear drive provides the feeding action, doing away with frictional braking. Rolls are connected by helical gearing and little or no slippage is reported at production speeds. The roller gear drive consists of a precision-cut, hardened and ground toolsteel cam with a tapered rib and a hub with ball or roller bearing followers. As the cam rotates, a curvature in the rib causes the hub to move one increment; this results in a partial revolution of the rolls to feed the stock into the die. The indexing mechanism maintains an accuracy of 0.002-in. It feeds at speeds to 500 strokes a minute without auxiliary locating methods. (Ferguson Machine Corp. of Indiana.)

For more data circle No. 49 on postcard, p. 134

Automatic Printer Copies Drawings Fast

Draftsmen in metalworking firms needing prints in a hurry can get them via this automatic 26-in. capacity printer. Using a dry reproduction process, the machine prints 97.7 pct of all cut sheets in volume as required, up to 24 x 36. An attachment even allows use of roll paper stock. The whiteprinter operates at speeds to 75-fpm (100-w per inch of light). It accommodates full development at all speeds and has an automatic separator. Front and rear delivery is standard. Well-gripping dual roller trigger-stops prevent injury to the operator or machine in case something goes wrong. An automatic dual-action time delay prevents retention of residual vapors and provides complete, even cooling of the lamp and cylinder at shutdown. The machine is 60-in. high, 50-in. wide, 42-in. deep plus rear delivery. It operates on 230-v, 60-cycle single phase alternating current. (Peck & Harvey Mfg. Co.)

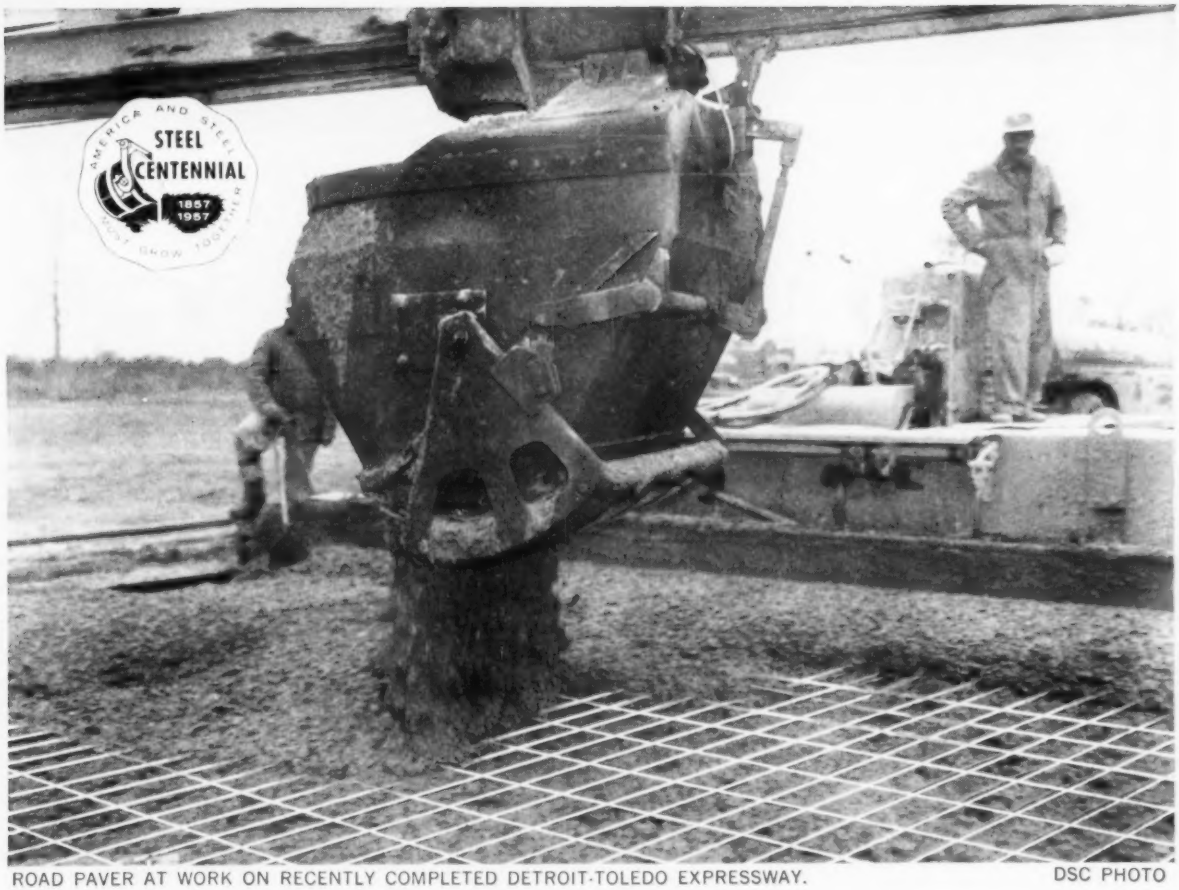
For more data circle No. 50 on postcard, p. 134



"C" Clamp Adjusts Easily and Quickly

Designed for extra heavy-duty applications is a new "C" clamp. Its deep-throated body is of drop forged, heat-treated steel. An adjustable handle and a floating swivel on its wide-threaded screw lets the clamp adjust easily and quickly. The clamp comes in seven sizes. (The Industrial Clamp Co.)

For more data circle No. 51 on postcard, p. 134



ROAD PAVER AT WORK ON RECENTLY COMPLETED DETROIT-TOLEDO EXPRESSWAY. DSC PHOTO

DSC Electro-Welded Wire Fabric Makes Concrete Crack Resistant

WHAT IT IS—DSC Fabric is a money-saving means of supplying the needed tensile strength which concrete commonly lacks. That explains its engineering function in the building of roads and structures and in fabricating concrete pipe and other precast concrete products.

Portsmouth mesh consists of DSC Bright Basic L. C. Reinforcing Wire. The wire intersections are electrically welded to produce a continuous lattice-work mat.

DSC Fabric conforms to ASTM Specification A-185-56T—PROOF of PERFORMANCE of DSC STEEL . . . on the job.

HOW IT SERVES THE PUBLIC—DSC Fabric promotes easier, smoother, faster and *safer* highway driving; saves tax money by reducing initial and maintenance costs of public roads, structures, sewerage and general drainage systems; protects buildings against cracks, leaks, vermin.

For more information on DSC Fabric and its uses . . . or about other DSC Rod and Wire Products . . . or DSC Sheet and Strip Steel—please write DSC General Sales Office or call your nearest DSC Customer "Rep" . . . today?

Customer Satisfaction Is Our Business

DSC MILLS AND PRODUCTS

PORTSMOUTH DIVISION, PORTSMOUTH, O.

Coke • Coal Chemicals • Pig Iron
Basic OH Steel Ingots • Blooms • Slabs • Billets • Rods
Hot Rolled and Cold Rolled Sheets • Low and Medium Carbon Manufacturers' Wire • High Carbon Specialty Wire • Aluminum Cable Strand Reinforcement • Rope Wire • Tire Bead Wire • Welded Wire Fabric

MILL DIVISION: DETROIT, MICH., HAMDEN, CONN.

Cold Rolled Carbon Steel Strip
Flat Cold Rolled Carbon Spring Steel

DETROIT DSC STEEL

DETROIT STEEL CORPORATION

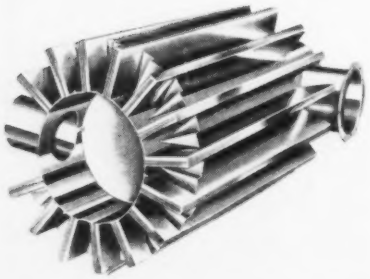
GENERAL SALES OFFICE, DETROIT 9, MICHIGAN

CUSTOMER "REP" OFFICES:

Charlotte, N. C., Chicago, Cincinnati, Cleveland, Columbus, Ohio., Dayton, Ohio., Detroit, Grand Rapids, Mich., Hamden (New Haven), Conn., Indianapolis, Jackson, Mich., Louisville, Ky., Milwaukee, Wis., New York, St. Louis, Toledo, Worcester, Mass.

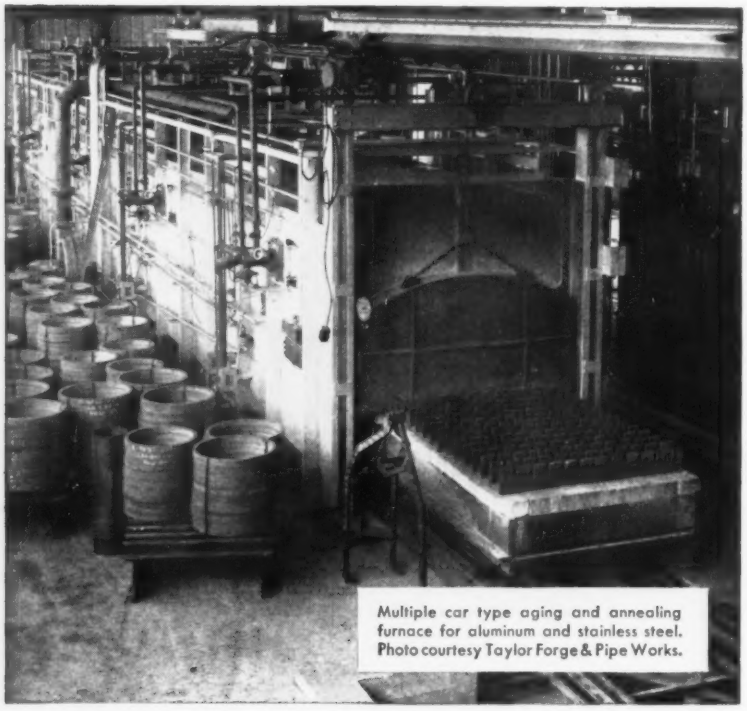
COPYRIGHT 1957

Heat Exchanger Features Unusual Fin Design



Fins and efficiency go hand in hand. At least that's the idea of one heat-exchanger maker. This finned-type unit is said to be highly efficient due to its unique design. Here's how it works: Combustion gases are forced through long thin fins which quickly transfer heat to the recirculated air. Special turbulators make the air "scrub" the fins to pick up plenty of heat. The design makes the exchanger last longer, too. It doesn't get as hot as other types at heat-concentration points near the combustion chamber. In this area, over twice the normal amount of steel perimeter dissipates heat quickly. (Lennox Industries, Inc.)

For more data circle No. 52 on postcard, p. 134



Multiple car type aging and annealing furnace for aluminum and stainless steel. Photo courtesy Taylor Forge & Pipe Works.

Increase Production...Lower Production Costs with

LOFTUS Industrial FURNACES

For years Loftus Industrial Furnaces have been providing dependable, economical service to all the metal industries. Their long life and efficient performance have been proven by time. The fact that they materially contribute to lower cost operation and increased production is a matter of record.

Whatever your melting, heating or heat-treating requirements, it will pay you to take advantage of Loftus' long experience in furnace design and construction. Many of the world's leading companies have —and to their utmost satisfaction, as proved by the high percentage of repeat orders. We would welcome an opportunity to quote on your requirements.

Designers and builders of industrial furnaces **LOFTUS** *Engineering Corporation*

SALES OFFICES IN PRINCIPAL CITIES

610 Smithfield Street, Pittsburgh 22, Pa.

140 S. Dearborn Street, Chicago, Ill.

56.24.4

Fights Corrosion

Corrosion protection on metals and ceramics is afforded by a new fluorine polymer. The material, featuring low loss dielectric properties, has excellent chemical resistance to acids, alkalies, salts and organic solvents. Available in an aerosol container, it easily sprays-on small metallic and ceramic items. (E. I. du Pont de Nemours & Co.)

For more data circle No. 53 on postcard, p. 134

Small Oiler

This precision-made oiler is designed like a fountain pen. It delivers exact amounts of oil as small as a fraction of a drop. The oiler operates in holes up to ⅞-in.

deep and other out-of-the-way places. It can be used either vertically or horizontally for both holes and surface application. The oil supply is clearly visible in its transparent reservoir. (Dill Mfg. Co.)

For more data circle No. 54 on postcard, p. 134

Cast Aluminum Manifold Mounts Several Valves

This manifold affords economical and efficient multiple mounting of 2, 3 or 4-way valves in any desired combination. Available in 2 and 3 station types, the cast aluminum manifold has full length inlet and exhaust ports, both 1-in. NPT, common to all valve stations. Electrical wiring is run through a 1¼-in. NPT conduit passage, with one access cover for all stations to simplify wiring. Pilot solenoid leads are enclosed in dirt and moisture-proof flexible conduit. The manifolds are designed with side or bottom cylinder porting to facilitate piping. Holes for mounting the manifold and valve assembly are also provided. It adapts to any type of control valve application. (Valvair Corp.)

For more data circle No. 55 on postcard, p. 134

Phone Booth

Noise in mills and plants can raise havoc with phone conversations. That's where this installation comes in handy. Especially made to dampen unwanted sounds, this phone booth provides a semi-enclosed oasis where foremen and others may speak with management,

etc., without interference from outside noise. The standard model comes ready to mount on any wall or desk; it may be switched from wall to desk or back again at any time. No elaborate installation is necessary. Size is about 30-in. high x 30-in. wide x 28-in. deep. (General Sound Control, Inc.)

For more data circle No. 56 on postcard, p. 134

Walkie-Truck Control

A new control system for "walkie" electric trucks offers both dynamic-braking and controlled-plugging. The control is now standard equipment on one producer's trucks. With controlled-plugging, the truck when traveling either forward or reverse, comes to a smooth stop; it then picks up speed in the

WHY POSTPONE PLANT EXPANSION

...because of lack of funds or high interest rates?

100% FINANCING now available at low interest rates

In WESTern PENNsylvania, qualifying firms can finance up to 100% of the cost of existing plant space . . . at an average 3½% *interest rate.* Take advantage of this cost-saving, capital-conserving, plan . . . made possible through a unique combination of community, state and commercial bank financing.

get the WESTern PENNsylvania story!

Dept. IA-1

Area Development Department
West Penn Power Company, Cabin Hill
Greensburg, Pa.

Please send me, without obligation, copies of:
_____"Facts about WESTern PENNsylvania"
_____100% Financing Folder

Name _____ Title _____

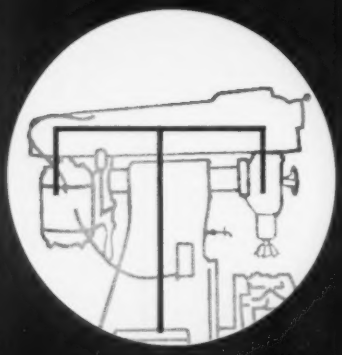
Company _____

Address _____ City and State _____

WEST PENN POWER

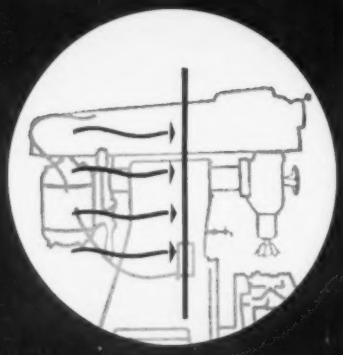
an operating unit of the WEST PENN ELECTRIC SYSTEM

BALANCED RIGIDITY



Motor mounted behind column balances weight of head, minimizes deflection.

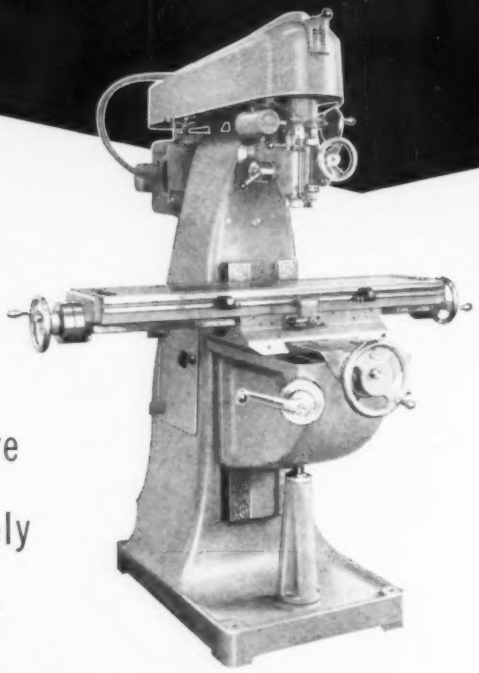
ISOLATION OF MOTOR VIBRATION



Column acts as baffle, keeping motor vibration away from head.

MORE EFFICIENT POWER TRANSMISSION

Wide belt spacing permits use of B-section V-belt, more wrap-around on pulleys.



mill more accurately with the

U.S. Vertical MILLING MACHINE

The *exclusive* motor mount design of the U. S. Vertical provides balance, rigidity and greater milling ACCURACY! And, check these ADDED features — all designed to aid in close tolerance work.

- Machine weighs 2000 lbs.
- Massive knee, saddle and table
- Extra wide bearing surfaces
- Tested and CERTIFIED ten ways
- Major castings are internally ribbed, normalized and stress relieved.
- Dovetails are deep and hand scraped
- Extra quill, knee, saddle and table travel

Write for your FREE copy of new U. S. Vertical Milling Machine Bulletin.

Builders of Milling Machines only

U★S★Burke

MACHINE TOOL DIVISION

32 Brotherton Road • Cincinnati 27, Ohio

You Get Better Results in HEAT TREATING!

Use the NIAGARA AERO HEAT EXCHANGER to control the temperature of your quench bath and you remove the heat at its rate of input, always quenching at the exact temperature that will give your product the best physical properties.

The Niagara Aero Heat Exchanger transfers the heat to atmospheric air by evaporative cooling. It extends your quenching capacity without using extra water. It pays for itself with water savings.

You can cool and hold accurately the temperature of all fluids, gases, air, water, oils, solutions, chemicals for processes and coolants for mechanical and electrical equipment. With the Niagara Aero Heat Exchanger you have closed system cooling, free from dirt and scale.

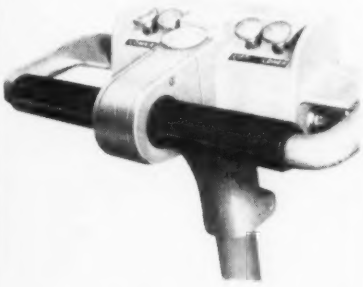
Write for Bulletin No. 120

NIAGARA BLOWER COMPANY

Dept. IA-7-2, 405 Lexington Ave.
NEW YORK 17, N. Y.

District Engineers in Principal Cities of U. S. and Canada

opposite direction when the control grip is reversed. Wear-and-tear on the truck's motor is thereby reduced. Dynamic-braking, which applies with the truck traveling either forward or reverse, allows the truck to come to a slow, gradual stop when the control handle is released or allowed to return to a vertical position. The truck's control grip itself also has been designed to comfortably fit the operator's hands. As a sidelight, the operator's hands are fully protected since they are at all times within the confines of the handle. (Lewis-Shepard Products, Inc.)



For more data circle No. 57 on postcard, p. 134

Control Valve

Fully automatic, a new 4000-lb, three-way neutral two-pressure control valve is designed for automated control of presses and similar equipment. Upon actuation, the valve applies low pressure for fast, controlled closing of the press or machine. Then, triggered by a control timer interval or limit switch, it applies high pressure. When processing is over, high pressure cuts off. The drain valve then opens and the press or machine opens. The valve adjusts to offer any throttling speed in any position of the closing and/or opening strokes. An easily accessible, manually operated safety control permits instant reversal at any point in the closing phase of the cycle. (Sinclair-Collins Valve Co.)

For more data circle No. 58 on postcard, p. 134

How Alcoa Aluminum Fasteners make good furniture even better

With your good name riding on every aluminum chair, chaise and settee, it pays to assemble with Alcoa® Aluminum Fasteners. You get perfect color match and lasting good looks with absolute protection against both galvanic and atmospheric corrosion. Your local Alcoa distributor has a complete stock of aluminum fasteners to meet your every need. He is listed in the Yellow Pages of your telephone directory.

THE ALCOA HOUR
TELEVISION'S FINEST LIVE DRAMA
ALTERNATE SUNDAY EVENINGS

ALCOA ALUMINUM FASTENERS
©ALCOA

Your Guide to the Best in Aluminum Value

Fill out coupon for facts, samples

Aluminum Company of America
2243-G Alcoa Bldg., Pittsburgh 19, Pa.

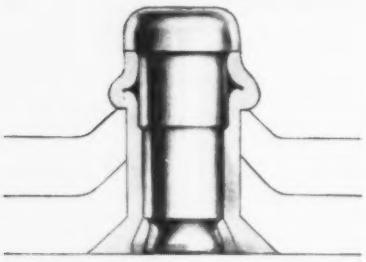
Gentlemen:
Please send complete specification data and samples of Alcoa Aluminum Fasteners.

Name_____

Title_____

Company_____

Address_____



Blind Rivets Hold Dimpled Sheets Tight

Oversize-diameter blind rivets are made 1/64-in. over to insure a good tight installation in dimpled sheets. They come with countersunk head style in a wide variety of sizes. Where comparatively thin sheets are dimpled for countersunk rivet installation, the holes are enlarged slightly in the dimpling process. Pin material for the new fasteners is 7075-T6 aluminum alloy. This is anodized or given chemical surface treatment. Sleeve material is 5056-H14 aluminum alloy. (Huck Mfg. Co.)

For more data circle No. 59 on postcard, p. 134

TAKE ADVANTAGE OF OUR LARGE STOCK OF

WISSCO PERFORATED METALS

. . . a rapid, yet economical source for all types of perforated metals including those with round, square, slot and decorative holes. For example, *these rounds can be shipped to you from stock without delay:* 1/16", 1/8", 3/16", 1/4", 3/8", 1/2".

Wissco Perforated Metals are available in stainless and carbon steels, monel, copper, brass, bronze and aluminum. Write today for stock lists as well as full details on Wissco custom perforating service.

In the East:
WICKWIRE SPENCER STEEL DIVISION
Atlanta • Boston • Buffalo • Chicago • Detroit
New Orleans • New York • Philadelphia

In the West:
THE COLORADO FUEL AND IRON CORPORATION
Denver and Oakland

4941

WISSCO
CF&I PERFORATED METALS
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

Dock Ramp

Especially designed for docks under 48-in. high is this powered dock ramp. Since many older buildings have docks this high, using the ramp can do away with expensive alterations. Installation is easy. The ramp

is simply bolted to the dock surface. It can be ready for business in just 30 minutes. Made of steel, it's hydraulically operated. (Lite-Line Metal Industries Div., Copperloy Corp.)

For more data circle No. 60 on postcard, p. 134

Trimming Presses

Trimming presses just introduced by one maker are for use in removing flash from die castings. These machines feature a wide bed area with low tonnage and convenient bed openings for disposal of scrap. They come in hydraulically or mechanically operated models. The trimming presses are

simple, strictly functional units which do the job quickly with only the required tonnage. They feature needed large bed area and simple scrap removal facilities. To produce their line of trimming presses at a reasonable cost, the maker has standardized the bed and slide area from 32 x 18 in. to 36 x 24 in. and 18 x 12 in. to 34 x 20 in. respectively; lengths of stroke from 3 to 12 in.; strokes per minute from 30 to 120; and tonnages beginning at 25 and going to 60 tons. Standard slide adjustments and slide knock-outs are available. Trimming presses come in several variations of these specifications so customers may purchase a semi-custom press with standardized press advantages. (Clearing Machine Corp., div. of U. S. Industries, Inc.)

For more data circle No. 61 on postcard, p. 134

Upset Screws

Available up to 2½-in. diam, these upset-forged shoulder screws have an unbroken and uniform grain flow for high strength. They also feature close tolerances, material savings. Made in hex-head and other head shapes, the fasteners offer all the advantages of one-piece construction. They do away with inventories of bolts and brushings, and cut down on assembly time of these. (Cleveland Cap Screw Co.)

For more data circle No. 62 on postcard, p. 134

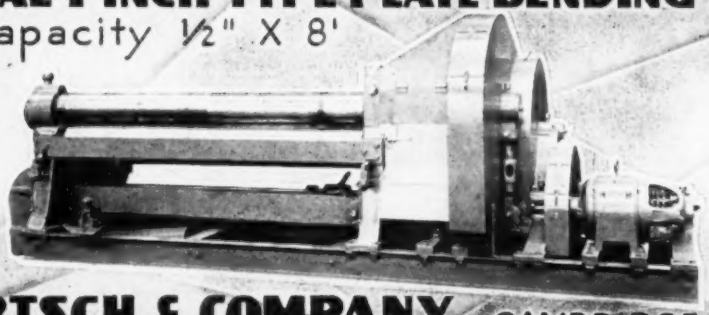
HEAT TREATED
ALLOY
STUDS

Precision-threaded, guaranteed to meet your specifications. Closest material quality control; test reports. Finest quality available, price right. Call or write now for your requirements.

H&R
The Threading Specialists

HORSPOOL & ROMINE
MANUFACTURING CO., INC.
5850 MARSHALL STREET
OAKLAND 8, CALIF. 27
Phone OLympic 2-1844

INITIAL PINCH TYPE PLATE BENDING ROLL
Capacity ½" X 8'



Our Line
Light and heavy machinery for all classes of sheet metal, plate and structural work.

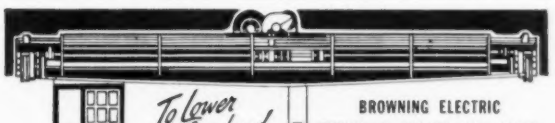
BERTSCH & COMPANY, CAMBRIDGE CITY • INDIANA

New **ARMSTRONG** *Adjustable Step Block*

ARMSTRONG Adjustable Step Blocks provide safe, rigid, easily adjustable support for setting-up work. Eliminate haphazard set-ups, save time and labor.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
5209 Armstrong Ave., Chicago 30, U.S.A.

Write for Catalog showing complete System of Armstrong Set Up and Hold Down Tools.



To Lower your Overhead..

BROWNING ELECTRIC TRAVELING CRANES AND HOISTS
up to 125-TON CAPACITY

VICTOR R. BROWNING & CO., INC. WILLOUGHBY (Cleveland), OHIO

Formed steel bridge rails

WE HAVE STEEL AND PRESSES --- for making these sections in lengths up to 20' ..... steel up to ½" thick!

MAY WE BID ON YOUR REQUIREMENTS

HARRISON SHEET STEEL CO.
4718 W. FIFTH AVENUE CHICAGO 44

Ductile Iron Runout Rolls in a continuous hot-strip mill help turn out thousands of tons of steel strip daily at Weirton Steel Company, Weirton, West Va. The rolls have an OD of 12 inches and measure 60 inches long.

Weirton stops thermal cracking with ductile cast iron runout table rolls

Over 60 ductile cast iron runout table rolls are already in service on the new 54-inch, continuous, hot-strip mill at Weirton Steel Company, division of National Steel Corporation.

Weirton plans to replace *all* the mill's original cast iron rolls as they wear out, with the new ductile iron type.

Weirton is changing because tests showed ductile iron rolls outlast any rolls used before. They resist warpage and cracking under thermal shock. They are tougher and, consequently, stand up under continuous shock and vibration. And, ductile iron rolls have good wear resistance.

As a result a big maintenance problem is solved . . . replacement costs are lowered . . . and expensive shutdowns are reduced to a minimum.

Take advantage of ductile cast iron. See if it won't reduce maintenance costs for you in your own plant. It has proven economical for charging boxes, furnace doors, ladle rings, sintering grates and many other applications.

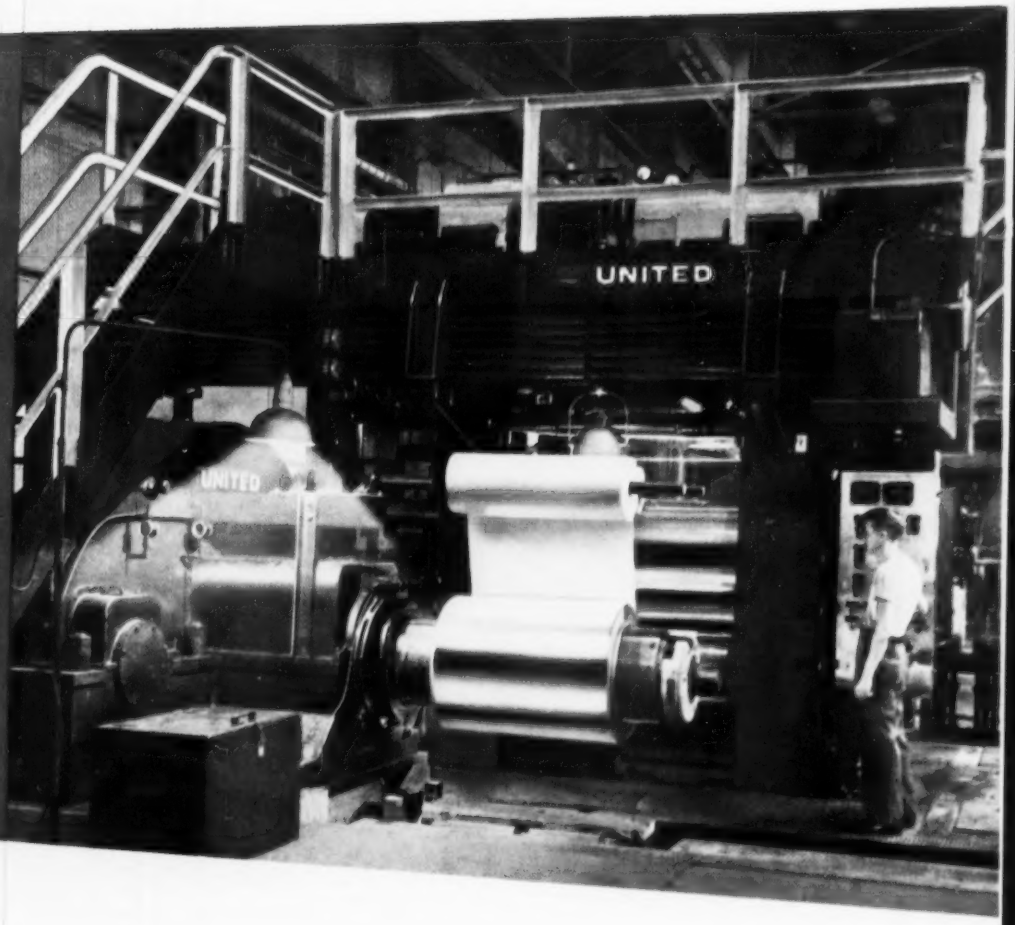
All the important information you want to know is given in our booklet "Ductile Iron, the Cast Iron That Can Be Bent." Successful applications are shown, grades of ductile iron are listed and mechanical properties are compared with cast iron, malleable iron and steel. For your copy write to:

The INTERNATIONAL NICKEL COMPANY, Inc.
67 Wall Street, New York 5, N. Y.

ductile iron...the cast iron that can be twisted and bent.

2-HIGH
TEMPER
PASS MILL

rolling
stainless steel



Designed and Built by

UNITED

ENGINEERING AND FOUNDRY COMPANY

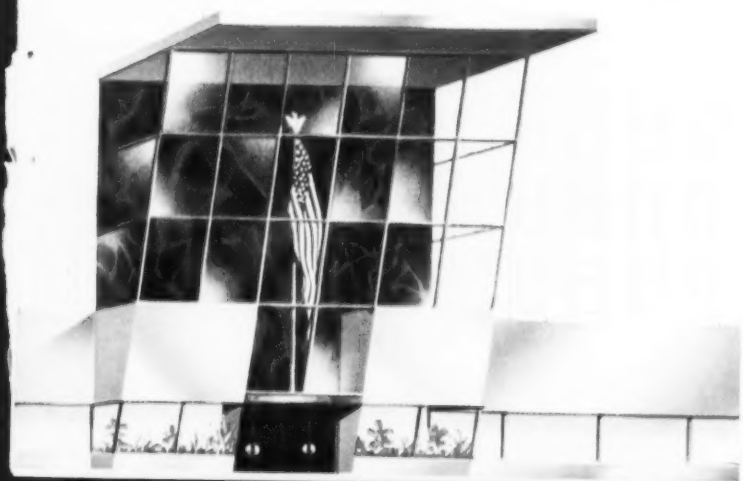
PITTSBURGH, PENNSYLVANIA

Plants at: PITTSBURGH • VANDERGRIFT • YOUNGSTOWN • CANTON
WILMINGTON (LOBDELL UNITED DIVISION)

Subsidiaries: ADAMSON UNITED COMPANY, AKRON, OHIO
STEDMAN FOUNDRY AND MACHINE CO., INC., AURORA, INDIANA

Designers and Builders of Ferrous and Nonferrous Rolling Mills, Mill Rolls, Auxiliary Mill and Processing Equipment, Presses and other Heavy Machinery. Manufacturers of Iron, Nodular Iron and Steel Castings and Weldments.

STAINLESS STEEL BUILDING ENTRANCE



UNITED *can serve you no matter where in the world you are.*

LOW COST DIFFERENCE BETWEEN

SKID

NO SKID

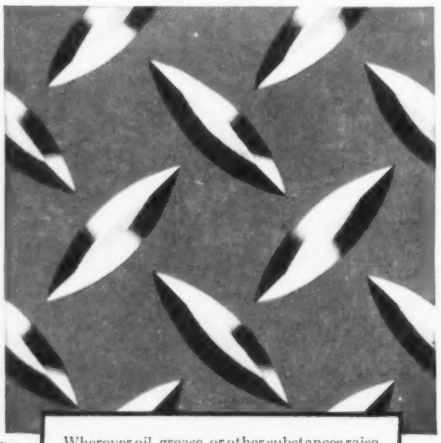
A.W. Super-Diamond rolled steel floor plate

- raised steel figures *diamond-shaped for maximum slip-skid resistance from all approach angles.*
- tough rolled steel floor plate for maximum industrial wear.
- non-directional pattern—no matching problems—minimum waste.
- easily fabricated with ordinary shop equipment for rapid installation.
- no maintenance problems—cleans, drains rapidly.
- use as independent flooring, structurally or as overlay.

For complete information write on company letterhead to Dept. SD-S4.

No other floor plate can match A.W. Super-Diamond's safety and durability at so low a cost.

Pattern actual size



Wherever oil, grease, or other substances raise special slipping accident hazards, we suggest a check on the special non-slip qualities of A.W. ALGRIP—the world's only abrasive rolled steel floor plate.

A.W. SUPER-DIAMOND

ROLLED STEEL FLOOR PLATE

ALAN WOOD STEEL COMPANY • CONSHOHOCKEN, PA.

Other Products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate—Plates—Hot and Cold Rolled Sheet and Strip—(Alloy and Special Grades)

The Iron Age Summary

'57 Could Set Record For Steel

Mills believe the worst is over for 1957. They look for a gradual pickup in last half.

If last six months holds to predicted 84-85 pct, output could equal 1955 record.

■ Steel men believe the worst is over for 1957. Some even feel that '57 could be a record year for steel production. They're looking ahead to a gradual improvement in third quarter followed by a strong push toward year-end.

The mills' optimism is based on (1) an expected upsurge in automotive demand, (2) a reversal of the inventory-cutting spree, (3) continued strong demand for plates, structurals, and oil country goods, and (4) a stronger export market.

Auto Orders Felt—Mills in several producing centers have begun to feel the effects of an improvement in automotive orders. A major automaker is ordering good tonnages of new model steel for August, and another is taking old model tonnage for the same month. Steel sources say the auto companies will make about 100,000 more cars in third quarter than had been looked for earlier.

These straws in the wind are prompting steel salesmen to urge buyers to place September orders early. While these suggestions are not expected to develop an all-out scramble for steel, some buyers are likely to hedge against upturn.

Production Outlook—Operations in the last half of '57 probably will average around 84-85 pct of capacity. This is based on the expectations of leading mills that third quarter operations will average about 82 pct, followed by a fourth quarter pickup to an average of over 85 pct.

An average output of 84.5 pct of capacity in last half would produce approximately 56.5 million ingot tons. This, coupled with first half output of 60.5 million, would approximately equal the record of 117.0 million tons in 1955.

Flat-Rolled Pickup—The pickup in new orders for sheet and strip will show up in August, although July also was better than had been expected.

Third quarter tonnages of heavy plates and structurals are on an allotment basis. The mills expect capacity operations through the rest of the year. Producers are booked to capacity on oil country seamless for the third quarter. And there will be sizable carryovers.

Economy Strong—New plant and equipment spending will take a record amount of steel and other materials in the third quarter. And there is evidence that the fourth quarter will see a continuance of the record-breaking pace in this segment of the economy. Construction also will maintain a strong pace over balance of the year. Although new freight car orders are down, heavy backlogs assure continued high production and demand for steel.

Steel Output, Operating Rates

Production	This Week	Last Week	Month Ago	Year Ago
(Net tons, 000 omitted)	2,058	2,023	2,189	369
Ingot Index				
(1947-1949=100)	130.7	125.9	136.2	22.9
Operating Rates				
Chicago	81.0	83.0*	84.5	6.0
Pittsburgh	85.5	87.0*	86.0	6.0
Philadelphia	90.0	89.0*	100.0	0.0
Valley	75.0	78.0*	73.0	13.0
West	99.0	99.0	106.0	24.0
Buffalo	90.0	88.0	102.0	0.0
Cleveland	77.0	77.0*	87.0	0.0
Detroit	84.0	97.0	103.0	52.0
S. Ohio River	66.0	65.0*	84.0	73.0
South	92.0	93.0	93.0	3.5
Upper Ohio R.	78.5	81.0*	84.0	55.5
St. Louis	84.0	80.0	55.5	84.0
Northeast	50.0	50.0	66.5	47.0
Aggregate	82.0	79.0	85.5	15.0

*Revised

Prices At A Glance

(cents per lb unless otherwise noted)

	This Week	Week Ago	Month Ago	Year Ago
Composite price				
Finished Steel, base	5.967	5.967	5.670	5.179
Pig Iron (Gross ton)	$64.95	$64.76	$64.56	$60.61
Scrap, No. 1 hvy (Gross ton)	$54.17	$54.50	$56.17	$46.50
Nonferrous				
Aluminum ingot	27.10	27.10	27.10	25.90
Copper, electrolytic	29.25	29.25	32.00	46.00
Lead, St. Louis	13.80	13.80	13.80	15.80
Magnesium ingot	36.00	36.00	36.00	34.50
Nickel, electrolytic	74.00	74.00	74.00	64.50
Tin, Straits, N. Y.	96.00	97.125*	98.25	96.125
Zinc, E. St. Louis	10.00	10.00	11.00	13.50

*Revised

Good Supply Picture for Pumps

Standard compressor sizes also are available on short notice. Used equipment is scarce.

While competition is active, a number of forces at work may bring higher prices soon.

▪ From a delivery standpoint, the customer who is in the market for a standard pump or compressor is in a good position. Many of these items are available off-the-shelf.

But while availability is no problem, there is a strong possibility prices soon may go up. Many pump makers have increased prices within the past year. But they point out that the recent steel price hike, the rise in the cost of motors and controls, plus their own labor cost situations are putting the pinch on profits.

Price Squeeze? — Countering the pressure for higher prices is a brisk competitive situation. Pump producers are reluctant to inflict another increase on their customers so soon. No one, apparently, wants to take the first step.

If you are in the market for a special or "engineered" item, chances are you will wind up signing a contract that includes an escalator clause covering possible cost increases to the manufacturer. Such clauses usually have about a 10 pct ceiling.

Backlogs Drop—Most producers report sales this year have been as good as, or slightly better than, last year. Backlogs, however, are generally lower.

Off-the-shelf delivery can be expected on many general service pumps for moving water, and for feeding pumps in the 1½ hp to 50 hp range. One large producer reports four to six weeks delivery for axial flow, paper stock, sewage, sump, steam condensation, and industrial process pumps.

"We're not hurting for business," a company official said, "but we're not so bogged down we won't take new orders."

Canned Pumps Popular—Special pumps requiring stainless steel or special alloys are the main bottleneck among producers.

One of the newer innovations, "canned pumps," are going over big especially in the chemical processing industries. Their advantage: no seal or stuffing box is required, eliminating areas where pump failure is common.

One company that produces these pumps exclusively reports its sales have quadrupled almost every year since it began marketing in 1952.

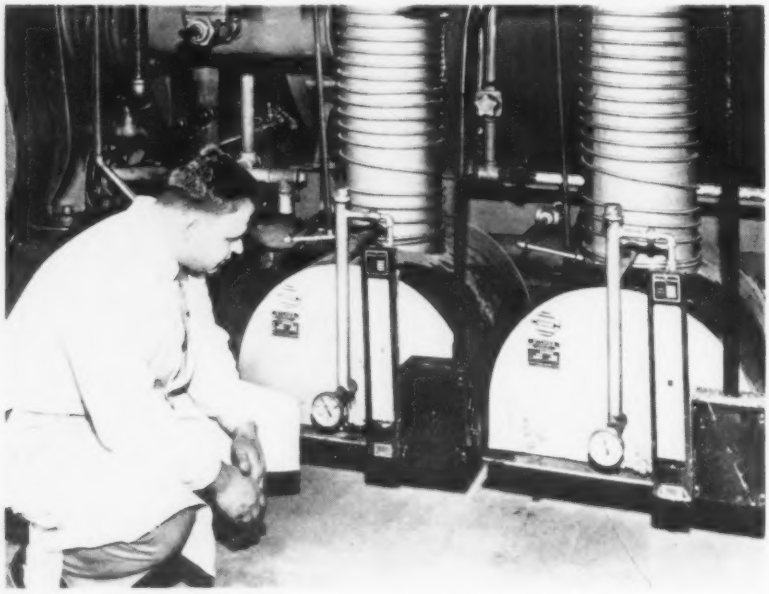
The Compressor Picture—Standard stationary compressors in the 25 hp to 100 hp range are in demand. Somewhat longer delivery promises can be expected. But smaller sizes are in plentiful supply.

If you are in a hurry for a larger compressor in the 25-100 hp range, it may be possible to pick up a used model. Even here, used compressors less than 10 years old are hard to come by.

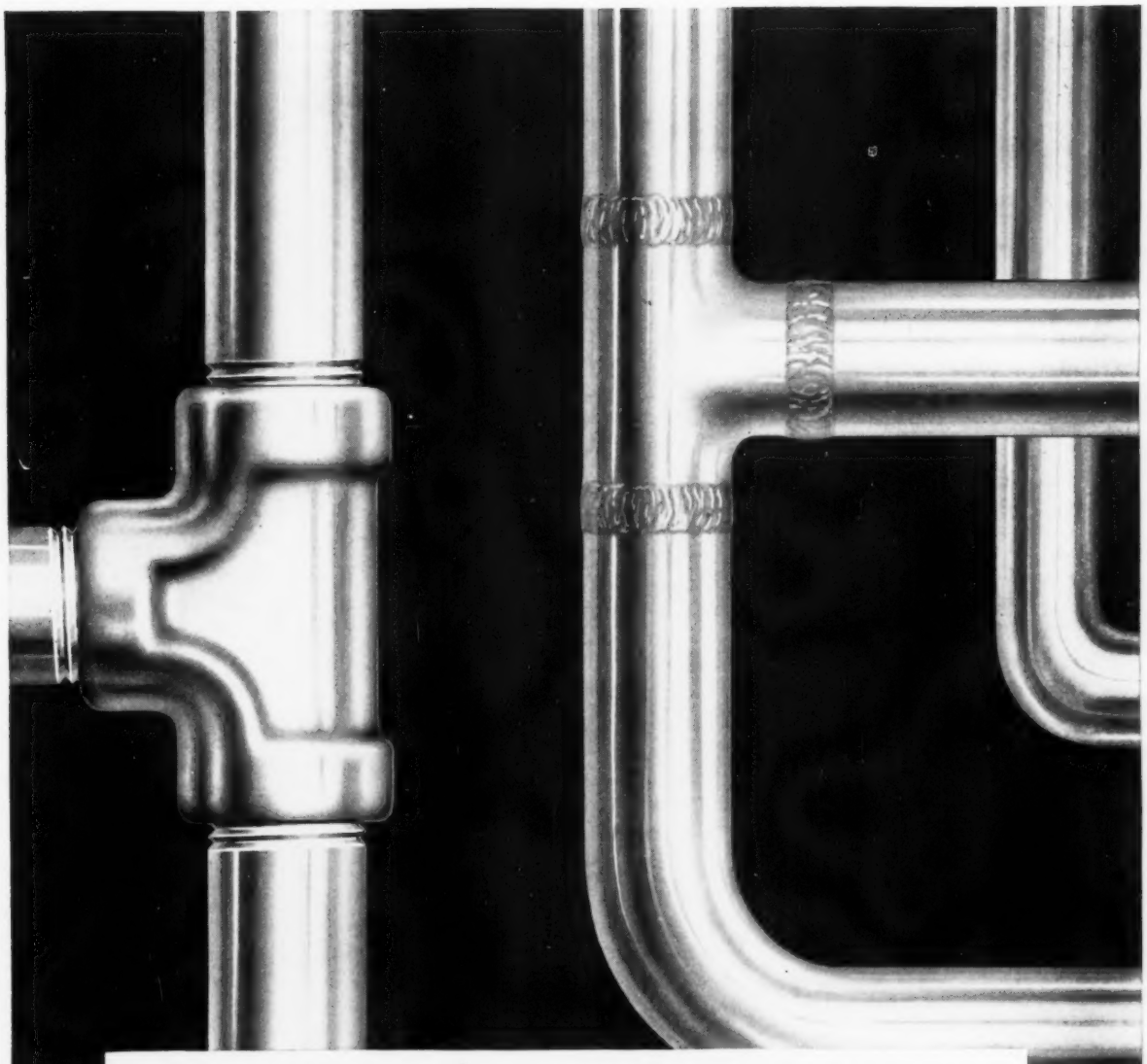
In years past, used equipment dealers have relied almost entirely on surplus government compressors for their source of supply. But surplus disposals these days are practically non-existent.

Price Overhauling — One large eastern compressor producer has announced a 10 pct price increase in its air construction tool line, effective July 17. "I don't see how we can avoid higher prices for our stationary and portable compressor lines," the sales manager says.

To forestall a possible across-the-board price increase, another major pump company has been going over price schedules on its standard items with a fine tooth comb.



AVAILABLE: Customers can get most standard pumps off-the-shelf. But there'll be an escalator clause in contracts for special models.



STAINLESS STEEL PIPE

Write for Free Catalog

THE CHEAPEST KIND of DOWN-TIME INSURANCE

Pennies per foot buys protection from costly down-time. Extremely tough Damascus stainless absorbs bumps and blows without damage. Protects personnel and equipment against danger of sudden leaks. Eliminates the possibility of expensive down-time because of service line failure. Make it a policy always to specify stainless pipe and tubing—a must on high temperature or corrosive applications—a wise investment on any line critical to production.

DAMASCUS TUBE COMPANY

STAINLESS STEEL TUBING AND PIPE

GREENVILLE PENNSYLVANIA

FORMED STEEL TUBE INSTITUTE

Pig Iron Increased $1.50 A Ton

Northern producers make second price advance within a four-month period.

Southern suppliers are going up $3.50, but this brings them more into line with other areas.

■ Increased costs have triggered another product price advance—a $1.50 a ton boost in pig iron.

Among producers making the advance are Alan Wood Steel Co. and Pittsburgh Coke and Chemical Co. Woodward Iron Co., Woodward, Ala., followed the lead of U. S. Pipe and Foundry Co., Birmingham, which earlier raised pig prices $3.50. (New prices are in table on page 171.)

The $3.50 increase by the southern producers actually brings that market more in line with northern suppliers announcing a $1.50 raise. That's because Birmingham producers did not increase prices last March when other pig suppliers made a $2-a-ton advance.

Price announcements from other producers are expected to follow the $1.50 pattern.

Cast Iron Pipe Up—U. S. Pipe and Foundry has announced increases of $7 per ton in the price of cast iron pressure pipe and $10 per ton for fittings, effective July 15. Increases were made necessary, the company said, because of the greater cost of labor, pig iron and other materials.

Sheet and Strip—Although market continues slow, July ordering has been a pleasant surprise to the mills. Generally it was better than expected. Upturn dated from the middle of June when automotive steel buyers became more active.

Despite some stepup in ordering a large sheet producer at **Pittsburgh** sees no substantial improvement in sheet until the fourth quarter and doesn't expect an operating pinch then.

A slow August is expected by **Cleveland** area mills in both hot- and cold-rolled sheet. Cold-rolled salesmen are telling buyers to review September requirements and get orders in ahead of the fall rush.

Large **Philadelphia** producer says July ordering was heavier than June's.

Large auto bodymaker pepped up the **Detroit** market with somewhat heavier buying for August. Big improvement in sheet there isn't expected until September.

Bar—Market is slack waiting for a fall pickup. An Eastern supplier of cold finished bar doesn't need more than 2-3 weeks to get product out if they have h-r bar stock to work from. Otherwise delivery is about 6-8 weeks. Alloy bar is running 6-12 weeks in a slow market.

Cleveland mills say while August ordering for h-r bars is better than July's, production is still under 65 pct of capacity.

Mill backlogs on automotive bar on the **West Coast** are now 40 days.

PURCHASING AGENT'S CHECKLIST

Steel mills expand tinplate capacity to meet demand. **P. 71**

Market for stainless steel tanks for trucks is growing. **P. 77**

Larger size ingots made in new vacuum melt furnace should widen uses of super-alloys. **P. 79**

Plates and Shapes—Quota allocations of products continue with heavy plate and wide flange beams especially hard to obtain. Warehouses, however, are finding the current market a little slow. Nevertheless, mills have heavy backlogs on heavy steel products. The decline in new orders for freight cars and fabricated structurals may mean a future easing in demand.

A **Cleveland** warehouse states it's heavily stocked on most grades of plate and fighting for sales. Only exception is heavy plate over 3 in. thick. A shipment of this stayed in stock only about 2 hours.

Customers inventories of plate and structural are described as "good" by one **Detroit** producer.

Mill carryovers for heavy standard and wide flange structurals and heavy plate are again extending at **Chicago.** However, light plate and light structurals are obtainable for mid-August delivery.

Commercial and industrial building on the **West Coast** has lengthened structural backlogs from 6 to 8 weeks.

Wire Products — Producers are generally operating at about 60 pct of capacity for July with no immediate hope of a upsurge in August. Only strong products are welded wire fabric for road and building construction use and wire rope for industrial use. Other items are available on 2 week delivery for standard sizes and types and four weeks for odd sizes.

Pipe and Tubing — **Pittsburgh** producer is booked to capacity on oil country seamless for the third quarter and expects to have a sizable carryover into the fourth. Mechanical tube orders are down in July but new orders indicate an improvement for August. Standard pipe is slowing down after a flurry of price buying in June.

Tinplate—Shipments are picking up, with June ordering better than May's. Mills are carrying large inventories, but they have orders covering their production and are continuing capacity operation.

COMPARISON OF PRICES

(Effective July 16, 1957)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in **Heavy Type**; declines appear in *Italics*.

	July 16 1957	July 9 1957	June 18 1957	July 17 1956
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	4.925¢	4.925¢	4.675¢	4.325¢
Cold-rolled sheets	6.05	6.05	5.75	5.325
Galvanized sheets (10 ga.)	6.60	6.60	6.30	5.85
Hot-rolled strip	4.925	4.925	4.675	4.325
Cold-rolled strip	7.17	7.17	6.870	6.28
Plate	5.12	5.12	4.87	4.52
Plates, wrought iron	13.15	13.15	10.40	10.40
Stainl's C-R strip (No. 302)	52.00	52.00	50.00	44.50
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) coke	$10.30	$10.30	$10.30	$9.85
Tin plates, electro (0.50 lb.)	9.00	9.00	9.00	8.55
Special coated mfg. ternes	9.55	9.55	9.55	9.10
Bars and Shapes: (per pound)				
Merchant bars	5.425¢	5.425¢	5.075¢	4.65¢
Cold finished bars	7.30	7.30	6.85	5.90
Alloy bars	6.475	6.475	6.125	5.65
Structural shapes	5.275	5.275	5.00	4.60
Stainless bars (No.302)	45.00	45.00	43.25	38.25
Wrought iron bars	14.45	14.45	11.50	11.50
Wire: (per pound)				
Bright wire	7.65¢	7.65¢	7.20¢	6.60¢
Rails: (per 100 lb.)				
Heavy rails	$5.525	$5.525	$5.275	$4.725
Light rails	6.50	6.50	6.25	5.65
Semifinished Steel: (per net ton)				
Rerolling billets	$77.50	$77.50	$74.00	$68.50
Slabs, rerolling	77.50	77.50	74.00	68.50
Forging billets	96.00	96.00	91.50	84.50
Alloy blooms, billets, slabs	114.00	114.00	107.00	96.00
Wire Rod and Skelp: (per pound)				
Wire rods	6.15¢	6.15¢	5.80¢	5.025¢
Skelp	4.875	4.875	4.625	4.225
Finished Steel Composite: (per pound)				
Base price	5.967¢	5.967¢	5.670¢	5.179¢

	July 16 1957	July 9 1957	June 18 1957	July 17 1956
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$70.38	$68.88	$68.88	$65.26
Foundry, Valley	65.00	65.00	65.00	60.50
Foundry, Southern Cin'ti	67.17	67.17	67.17	62.98
Foundry, Birmingham	61.33	60.17	59.00	57.67
Foundry, Chicago	65.00	65.00	65.00	60.50
Basic, del'd Philadelphia	69.88	68.38	68.38	64.48
Basic, Valley furnace	64.50	64.50	64.50	60.00
Malleable, Chicago	65.00	65.00	65.00	60.50
Malleable, Valley	65.00	65.00	65.00	60.50
Ferromanganese, cents per lb‡ 74 to 76 pct Mn base.	12.75¢	12.75¢	12.75¢	9.50¢
Pig Iron Composite: (per gross ton)				
Pig iron	$64.95	$64.76	$64.56	$60.61
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	$56.50	$56.50	$57.50	$46.50
No. 1 steel, Phila. area	54.50	55.50	56.50	48.50
No. 1 steel, Chicago	51.50	51.50	54.50	44.50
No. 1 bundles, Detroit	48.50	47.50	46.50	39.50
Low phos., Youngstown	56.50	54.50	56.50	52.50
No. 1 mach'y cast, Pittsburgh	58.50	58.50	56.50	54.50
No. 1 mach'y cast, Philadel'a	56.50	56.50	56.50	54.50
No. 1 mach'y cast, Chicago	50.50	50.50	54.50	47.50
Steel Scrap Composite: (per gross ton)				
No. 1 heavy melting scrap	$54.17	$54.50	$56.17	$46.50
Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	$15.38	$15.38	$15.38	$14.50
Foundry coke, prompt	$17.50-$19	$17.50-$19	$17.50-$19	$17.50
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	29.25	29.25	32.00	46.00
Copper, Lake, Conn.	29.25	29.25	32.00	46.00
Tin, Straits, N. Y.	96.00†	97.125*	98.25	96.125
Zinc, East St. Louis	10.00	10.00	11.00	13.50
Lead, St. Louis	13.80	13.80	13.80	15.80
Aluminum, virgin ingot	27.10	27.10	27.10	25.90
Nickel, electrolytic	74.00	74.00	74.00	64.50
Magnesium, ingot	36.00	36.00	36.00	34.50
Antimony, Laredo, Tex.	33.00	33.00	33.00	33.00

† Tentative. ‡ Average. * Revised.

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Averages of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

←To identify producer see Key on P. 182→

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdsboro, Pa. *B6*	66.50	67.00	67.50	68.00	.....
Birmingham *R3*	58.50	59.00*	.....	.....	.....
Birmingham *R9*	62.00	62.50*	66.50	.....	.....
Birmingham *U4*	62.00	62.50*	66.50	.....	.....
Buffalo *R3*	64.50	65.00	65.50	66.00	.....
Buffalo *H1*	64.50	65.00	65.50	66.00	.....
Buffalo *W6*	64.50	65.00	65.50	66.00	.....
Chester *P2*	66.50	67.00	67.50	.....	.....
Chicago *I4*	64.50	65.00	65.00	65.50	.....
Cleveland *A5*	64.50	65.00	65.00	65.50	69.50†
Cleveland *R3*	64.50	65.00	65.00	65.50	.....
Duluth *I6*	64.50	65.00	65.00	65.50	69.50†
Erie *I4*	64.50	65.00	65.00	65.50	69.50†
Everett *M6*	66.50	67.00	67.50	.....	.....
Fontana *K1*	72.50	73.00	.....	.....	.....
Geneva, Utah *C7*	64.50	65.00	.....	.....	.....
Granite City *G2*	66.40	66.90	67.40	.....	.....
Hubbard *Y1*	.....	.....	65.00	.....	.....
Ironton, Utah *C7*	64.50	65.00	.....	.....	.....
Midland *C11*	64.50	.....	.....	.....	.....
Minnequa *C6*	64.50	65.00	65.50	.....	.....
Monessen *P6*	64.50	.....	.....	.....	.....
Neville Is. *P4*	66.00	66.50	66.50	67.00	71.00
N. Tonawanda *T1*	.....	65.00	65.50	66.00	.....
Sharpsville *S3*	64.50	65.00	65.00	65.50	.....
So. Chicago *R3*	64.50	65.00	65.00	.....	.....
Swedeland *A2*	68.00	68.50	69.00	69.50	.....
Toledo *I4*	64.50	65.00	65.00	65.50	.....
Troy, N. Y. *R3*	66.50	67.00	67.50	68.00	72.50
Youngstown *Y1*	.....	.....	65.00	65.50	.....

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.25 pct manganese or portion thereof over 1 pct, $2 per ton for 0.5 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. * Add $1.00 for 0.31-0.69 pct phos. † Intermediate low phos. ‡ Add $1.00 for 0.31 to 0.50 pct phos.

Silvery Iron: Buffalo (6 pct), *H1*, $78.50; **Jackson,** *J1, I4* **(Globe Div.),** $77.25; **Niagara Falls** (15.01-15.50), $101.00; **Keokuk** (14.01-14.50), $103.50; (15.51-16.00), $106.50. Add $1.00 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 18 pct. Add $1.25 for each 0.50 pct manganese over 1.00 pct. Bessemer silvery pig iron (under .10 pct phos.): $64.00. Add $1.00 premium for all grades silvery 6 pct to 14 pct.

STAINLESS STEEL

Base price cents per lb f.o.b. mill

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	22.00	23.75	23.25	25.25	—	27.00	39.75	32.25	37.00	—	16.75	—	17.00
Slabs, billets	27.00	27.00	28.00	31.50	32.00	33.25	49.50	40.00	46.50	—	21.50	—	21.75
Billets, forging	—	36.50	—	38.00	41.00	40.50	62.25	47.00	55.75	32.00	28.25	28.75	28.75
Bars, struct.	42.00	43.00	44.25	45.00	48.00	47.75	73.00	55.50	64.75	37.75	33.75	34.25	34.25
Plates	44.25	45.00	46.25	47.25	—	50.75	76.75	59.75	69.75	40.25	35.00	—	36.00
Sheets	48.50	49.25	51.25	52.00	—	55.50	81.50	65.50	79.25	—	40.25	—	40.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	—	44.25	69.25	53.50	63.50	—	31.00	—	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	—	55.50	81.50	65.50	79.25	48.25	40.25	—	40.75
Wire CF; Rod HR	—	40.75	42.00	42.75	45.75	45.50	69.50	52.50	61.50	36.00	32.25	32.75	32.75

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., *C11;* Brackenridge, Pa., *A3;* Butler, Pa., *A7;* Vandergrift, Pa., *U1;* Washington, Pa., *W2, J2* Baltimore, *E1;* Middletown, O., *A7;* Massillon, O., *R3;* Gary, *U1;* Bridgeville, Pa., *U2;* New Castle, Ind., *I2.*

Strip: Midland, Pa., *C11;* Waukegan, Cleveland, *A5;* Carnegie, Pa., *S9,* McKeesport, Pa., *F1;* Reading, Pa., *C2;* Washington, Pa., *W2;* W. Leechburg, Pa., *A3;* Bridgeville, Pa., *U2;* Detroit, *M2,* Canton-Massillon, O., *R3;* Harrison, N. J., *D3;* Youngstown, *C5,* Sharon, Pa., *S1;* Butler, Pa., *A7;* Wallingford, Conn., *U3* (plus further conversion extras); *W1;* New Bedford, Mass. (.25¢ per lb higher), *R6;* Gary, *U1* (.25¢ per lb higher).

Bar: Baltimore, *A7;* S. Duquesne, Pa., *U1;* Munhall, Pa., *U1;* Reading, Pa., *C2;* Titusville, Pa., *U2;* Washington, Pa. *J2;* McKeesport, Pa., *U1, F1;* Bridgeville, Pa., *U2;* Dunkirk, N. Y., *A5;* Massillon, O., *R3;* S. Chicago, *U1;* Syracuse, N. Y., *C11;* Watervliet, N. Y., *A3;* Waukegan, *A5;* Canton, O., *T5, R3;* Ft. Wayne, *I4;* Philadelphia, *D5;* Detroit, *R5;* Gary *U1.*

Wire: Waukegan, *A5;* Massillon, O., *R3;* McKeesport, Pa., *F1;* Ft. Wayne, *J4;* Harrison, N. J., *D3;* Baltimore, *A7* Dunkirk, *A3;* Monessen, *P1;* Syracuse, *C11;* Bridgeville, *U2.*

Structurals: Baltimore, *A7;* Massillon, O., *R3;* Chicago, Ill., *J4;* Watervliet, N. Y., *A3;* Syracuse, *C11;* S. Chicago, *U1.*

Plates: Brackenridge, Pa., *A3;* Chicago, *U1;* Munhall, Pa., *U1;* Midland, Pa., *C11;* New Castle, Ind., *I2;* Middletown, *A7;* Washington, Pa., *J2;* Cleveland, Massillon, *R3;* Coatesville, Pa., *C15;* Philadelphia, *D5;* Vandergrift, Pa., *U1;* Gary, *U1;*

Forgings billets: Midland, Pa., *C11;* Baltimore, *A7;* Washington, Pa., *J2;* McKeesport, *F1;* Massillon, Canton, O., *R3,* Watervliet, *A3;* Pittsburgh, Chicago, *U1;* Syracuse *C11;* Detroit *R5;* Munhall, Pa., S. Chicago, *U1.*

Market Becalmed In Summer Lull

Mills are not long on inventory, but aren't anxious to jump into the market.

Collections are also at a low point and trade appears to be willing to wait for new developments.

■ In terms of actual sales and market activity, the market is at its quietest point in months. Little additional action is expected as the summer doldrums move in.

Except for the East Coast, the quiet tone does not mean weakness. In the Midwest, offers to buy at lower prices failed to bring out scrap, and collections are very slow with dealers reluctant to sell.

Cleveland and Valley prices advanced and Pittsburgh also withstood lower prices. Most markets are marking time, waiting out the summer lull and counting on more action and higher prices in late summer or early fall.

Eastern markets are weaker. Some scrap is building up in dealer yards and dealers had lowered their prices. As a result, it was a foregone conclusion that orders placed early this week brought the market down $1. Export is also in the doubtful stage, with no orders placed or prices quoted for August shipment.

Mill inventories are not particularly high, but purchasers are not anxious to get into the market. Dealers are also willing to wait for late summer development.

Pittsburgh — Prices of openhearth grades are unchanged. The market is quiet as no major consumer has purchased this month. Brokers are paying $54 to $56 for No. 1 heavy melting with shipments at a low level. Moreover, No. 1 RR heavy melting went for over $64 on a late list. The increase indicated good dealer scrap is still tight.

Chicago—Although the market is quiet, prices have firmed. Mill activity is very light, but in scattered instances where purchases were made, mills were forced to buy at higher prices to coax out even small quantities of scrap. Only No. 2 bundles show any weakness and this is not spelled out in lower prices.

Philadelphia — The market slipped slightly on the basis of sales early this week. Before the lower prices showed up in mill purchases, dealers had already lowered their asking prices and some scrap was starting to build up in yards. Most steelmaking and turnings grades are off $1 in the weaker market.

New York—Demand from mills is at a standstill. There have been reports of brokers testing the market at $2 to $3 below previous price. There were some offers to sell, but not enough to peg the market. Steelmaking grades are off $1 on the basis of export buying, and purchases in an adjacent market.

Detroit—Mills continue to resist paying higher prices although dealers appear to have won a slight boost. Dealers just managed to make their sales after industrial lists closed two weeks ago, but advances did not come up to earlier expectations. Mills came in for moderate tonnages and prices did not advance as high as originally anticipated.

Cleveland—Dealers are holding on to small tonnages in anticipation of Valley sales in the next few weeks. Scattered sales in small tonnages recently have indicated a stronger market than estimated earlier. No. 2 bundles were sold for $44, cut structural and plate for $61, and a local steel foundry had to put in a $2 springboard to meet requirements. Plant vacations in the Valley have dampened interest. Local auto lists are going out of the district this month. Turnings are backing up in yards.

St. Louis—Movement of scrap continues less than consumption rate, and mills are digging into their inventories. Weather and vacations have slowed down collection and processing.

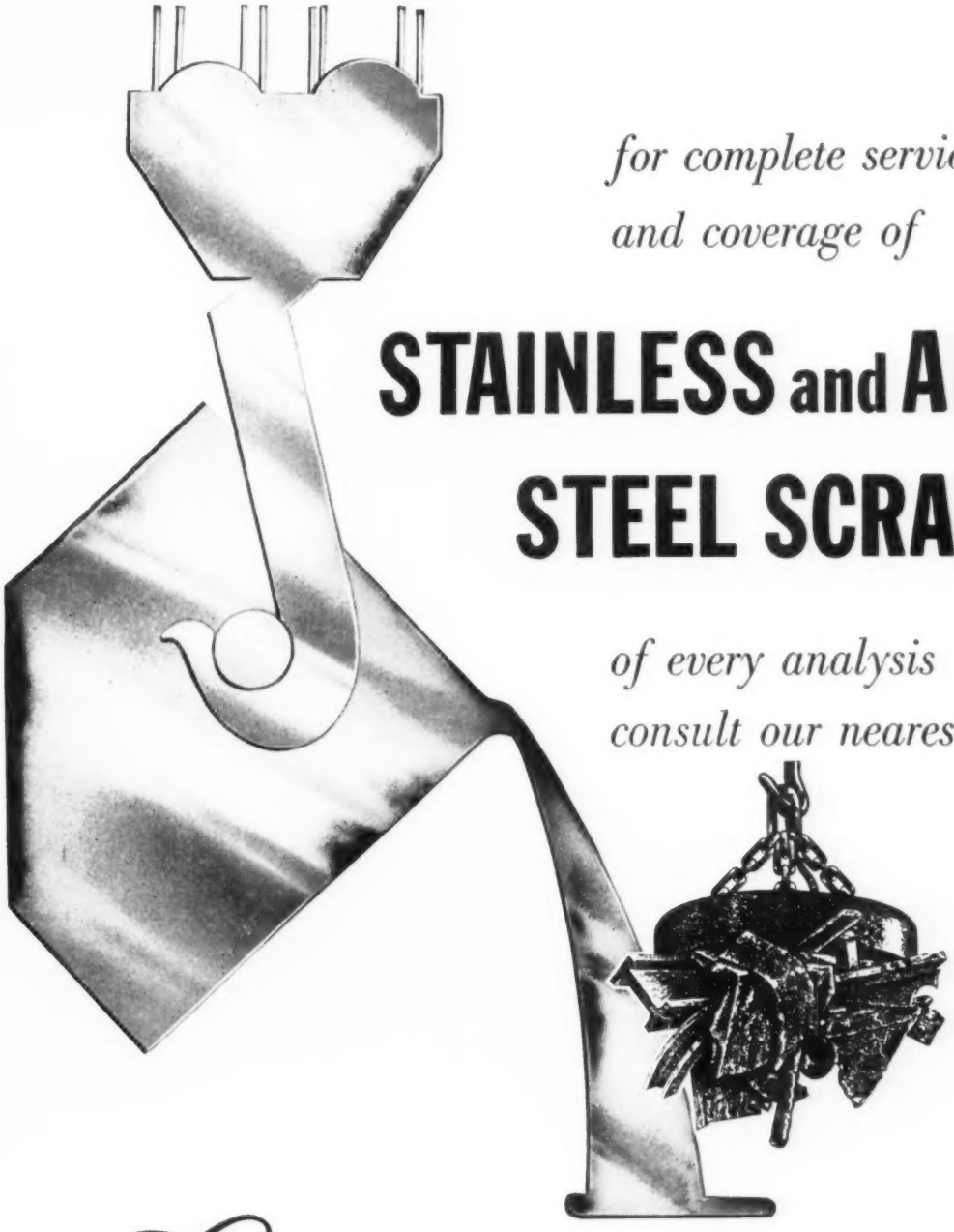
Birmingham — Prices of most grades are steady in this district on moderate trading. The largest buyer of openhearth scrap continues out of the market. Electric furnaces are spotty. Export is quiet. One mill is quoting prices effective only in the immediate vicinity. Only grade to show activity is rerolling rails, up $3.

Cincinnati — The market continued quiet, but has underlying strength. Some specialty tonnage is going up river. Dealer yard stocks are low with good shipments on old orders.

Buffalo—The market has been very inactive here except for a small sale of cast. Mills are using up their inventory, possibly with an eye to lower prices. But most prices are unchanged.

Boston — Apathy pervades this market. In the absence of any buying, prices of most grades are off slightly.

West Coast — Two major mills are out of the market. Prices are unsteady, but on the upside. Some exporters are bidding up prices to fill commitments.



for complete service
and coverage of

STAINLESS and ALLOY STEEL SCRAP

of every analysis
consult our nearest office

Luria Brothers and Company, Inc.

main office **PHILADELPHIA NATIONAL BANK BUILDING,** *Phila. 7, Pa.*

PLANTS

LEBANON, PENNA. — DETROIT (ECORSE), MICHIGAN
READING, PENNA. — PITTSBURGH, PENNA.
MODENA, PENNA. — ERIE, PENNA.

OFFICES

BIRMINGHAM, ALA. — CLEVELAND, OHIO — LOS ANGELES, CAL. — READING, PENNA.
BOSTON, MASS. — DETROIT, MICHIGAN — NEW YORK, N. Y. — ST. LOUIS, MISSOURI
BUFFALO, N. Y. — HOUSTON, TEXAS — PITTSBURGH, PENNA. — SAN FRANCISCO, CAL.
CHICAGO, ILLINOIS — LEBANON, PENNA. — PUEBLO, COLORADO — SEATTLE, WASH.
MONTREAL, CANADA

IMPORT & EXPORT — **LIVINGSTON & SOUTHARD, INC.,** 99 Park Ave., New York, N. Y. • *Cable Address:* **FORENTRACO**

SCRAP PRICES *(Effective July 16, 1957)*

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$56.00 to $57.00
No. 2 hvy. melting	49.00 to 50.00
No. 1 dealer bundles	56.00 to 57.00
No. 1 factory bundles	62.00 to 63.00
No. 2 bundles	46.00 to 47.00
No. 1 busheling	56.00 to 57.00
Machine shop turn.	33.00 to 34.00
Mixed bor. and ms. turn.	33.00 to 34.00
Shoveling turnings	37.00 to 38.00
Cast iron borings	37.00 to 38.00
Low phos. punch'gs plate	62.00 to 63.00
Heavy turnings	50.00 to 51.00
No. 1 RR. hvy. melting	64.00 to 65.00
Scrap rails, random lgth.	72.00 to 73.00
Rails 2 ft and under	75.00 to 76.00
RR. steel wheels	71.00 to 72.00
RR. spring steel	71.00 to 72.00
RR. couplers and knuckles	71.00 to 72.00
No. 1 machinery cast.	58.00 to 59.00
Cupola cast.	49.00 to 50.00
Heavy breakable cast.	47.00 to 48.00

Chicago

No. 1 hvy. melting	$51.00 to $52.00
No. 2 hvy. melting	44.00 to 45.00
No. 1 dealer bundles	52.00 to 53.00
No. 1 factory bundles	57.00 to 58.00
No. 2 bundles	41.00 to 42.00
No. 1 busheling	51.00 to 52.00
Machine shop turn.	32.00 to 33.00
Mixed bor. and turn.	34.00 to 35.00
Shoveling turnings	34.00 to 35.00
Cast iron borings	34.00 to 35.00
Low phos. forge crops	61.00 to 62.00
Low phos. punch'gs plate	57.00 to 58.00
Low phos. 3 ft and under	55.00 to 56.00
No. 1 RR. hvy. melting	58.00 to 59.00
Scrap rails, random lgth.	70.00 to 71.00
Rerolling rails	76.00 to 77.00
Rails 2 ft and under	75.00 to 76.00
Locomotive tires cut	62.00 to 63.00
Cut bolsters & side frames	63.00 to 64.00
Angles and splice bars	66.00 to 67.00
RR. steel car axles	82.00 to 83.00
RR. couplers and knuckles	60.00 to 61.00
No. 1 machinery cast.	50.00 to 51.00
Cupola cast.	47.00 to 48.00
Heavy breakable cast.	44.00 to 45.00
Cast iron brake shoe	46.00 to 47.00
Cast iron wheels	53.00 to 54.00
Malleable	61.00 to 62.00
Stove plate	44.00 to 45.00
Steel car wheels	62.00 to 63.00

Philadelphia Area

No. 1 hvy. melting	$54.00 to $55.00
No. 2 hvy. melting	47.00 to 48.00
No. 1 dealer bundles	54.00 to 55.00
No. 2 bundles	45.00 to 46.00
No. 1 busheling	54.00 to 55.00
Machine shop turn.	37.00 to 38.00
Mixed bor. short turn.	37.00 to 38.00
Cast iron borings	37.00 to 38.00
Shoveling turnings	40.00 to 41.00
Clean cast. chem. borings	44.00 to 45.00
Low phos. 5 ft and under	58.00 to 59.00
Low phos. 2 ft and under	59.00 to 60.00
Low phos. punch'gs	59.00 to 60.00
Elec. furnace bundles	58.00 to 59.00
Heavy turnings	50.00 to 51.00
RR. steel wheels	65.00 to 66.00
RR. spring steel	65.00 to 66.00
Rails 18 in. and under	71.00 to 72.00
Cupola cast.	48.00 to 49.00
Heavy breakable cast.	54.00 to 55.00
Cast iron car wheels	59.00 to 60.00
Malleable	61.00 to 62.00
Unstripped motor blocks	43.00 to 44.00
No. 1 machinery cast.	56.00 to 57.00

Cleveland

No. 1 hvy. melting	$51.00 to $52.00
No. 2 hvy. melting	44.00 to 45.00
No. 1 dealer bundles	51.00 to 52.00
No. 1 factory bundles	55.00 to 56.00
No. 2 bundles	43.00 to 44.00
No. 1 busheling	51.00 to 52.00
Machine shop turn.	22.00 to 23.00
Mixed bor. and turn.	26.00 to 27.00
Shoveling turnings	26.00 to 27.00
Cast iron borings	26.00 to 27.00
Cut struct'r'l & plates, 2 ft & under	60.00 to 61.00
Drop forge flashings	51.00 to 52.00
Low phos. punch'gs, plate	52.00 to 53.00
Foundry steel, 2 ft & under	55.00 to 56.00
No. 1 RR. heavy melting	57.00 to 58.00
Rails 2 ft and under	73.00 to 74.00
Rails 18 in. and under	74.00 to 75.00
Railroad grate bars	35.00 to 36.00
Steel axle turnings	33.00 to 34.00
Railroad cast	56.00 to 57.00
No. 1 machinery cast.	55.00 to 56.00
Stove plate	50.00 to 51.00
Malleable	62.00 to 63.00

Youngstown

No. 1 hvy. melting	$54.00 to $55.00
No. 2 hvy. melting	47.00 to 48.00
No. 1 dealer bundles	54.00 to 55.00
No. 2 bundles	44.00 to 45.00
Machine shop turn.	27.00 to 28.00
Shoveling turnings	30.00 to 31.00
Cast iron borings	30.00 to 31.00
Low phos. plate	56.00 to 57.00

Buffalo

No. 1 hvy. melting	$45.00 to $46.00
No. 2 hvy. melting	39.00 to 40.00
No. 1 busheling	45.00 to 46.00
No. 1 dealer bundles	45.00 to 46.00
No. 2 bundles	35.00 to 36.00
Machine shop turn.	28.00 to 29.00
Mixed bor. and turn.	30.00 to 31.00
Shoveling turnings	34.00 to 35.00
Cast iron borings	31.00 to 32.00
Low phos. plate	49.00 to 50.00
Scrap rails, random lgth.	56.00 to 57.00
Rails 2 ft and under	66.00 to 67.00
RR. steel wheels	53.00 to 54.00
RR. spring steel	49.00 to 50.00
RR. couplers and knuckles	49.00 to 50.00
No. 1 machinery cast.	50.00 to 51.00
No. 1 cupola cast.	45.00 to 46.00

Detroit

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$48.00 to $49.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 dealer bundles	48.00 to 49.00
No. 2 bundles	35.00 to 36.00
No. 1 busheling	48.00 to 49.00
Drop forge flashings	47.00 to 48.00
Machine shop turn.	26.00 to 27.00
Mixed bor. and turn.	29.00 to 30.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	29.00 to 30.00
Low phos. punch'gs plate	48.00 to 49.00
No. 1 cupola cast.	48.00 to 49.00
Heavy breakable cast.	44.00 to 45.00
Stove plate	45.00 to 46.00
Automotive cast.	54.00 to 55.00

St. Louis

No. 1 hvy. melting	$45.50 to $46.50
No. 2 hvy. melting	43.00 to 44.00
No. 1 dealer bundles	47.00 to 48.00
No. 2 bundles	38.00 to 39.00
Machine hop turn.	30.00 to 31.00
Cast iron borings	31.00 to 32.00
Shoveling turnings	31.00 to 32.00
No. 1 RR. hvy. melting	56.00 to 57.00
Rails, random lengths	66.00 to 67.00
Rails 18 in. and under	73.00 to 74.00
Locomotive tires uncut	59.00 to 60.00
Angles and splice bars	62.00 to 63.00
Std. steel car axles	72.00 to 73.00
RR. specialties	62.00 to 63.00
Cupola cast.	45.00 to 46.00
Heavy breakable cast.	41.00 to 42.00
Cast iron brake shoes	43.00 to 44.00
Stove plate	43.50 to 44.50
Cast iron car wheels	49.00 to 50.00
Rerolling rails	72.00 to 73.00
Unstripped motor blocks	40.00 to 41.00

Boston

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$42.00 to $43.00
No. 2 hvy. melting	36.00 to 37.00
No. 1 dealer bundles	42.00 to 43.00
No. 2 bundles	35.00 to 36.00
No. 1 busheling	42.00 to 43.00
Elec. furnace, 3 ft & under	47.00 to 48.00
Machine shop turn.	25.00 to 26.00
Mixed bor. and short turn.	29.00 to 30.00
Shoveling turnings	28.00 to 29.00
Clean cast. chem. borings	31.00 to 32.00
No. 1 machinery cast.	40.00 to 41.00
Mixed cupola cast.	33.00 to 34.00
Heavy breakable cast.	42.00 to 43.00
Stove plate	32.00 to 33.00
Unstripped motor blocks	31.00 to 32.00

New York

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$50.00 to $51.00
No. 2 hvy. melting	40.00 to 41.00
No. 2 dealer bundles	39.00 to 40.00
Machine shop turn.	26.00 to 27.00
Mixed bor. and turn.	28.00 to 29.00
Shoveling turnings	29.00 to 30.00
Clean cast. chem. borings	34.00 to 35.00
No. 1 machinery cast.	46.00 to 47.00
Mixed yard cast.	41.00 to 42.00
Charging box cast.	46.00 to 47.00
Heavy breakable cast.	46.00 to 47.00
Unstripped motor blocks	33.00 to 34.00

Birmingham

No. 1 hvy. melting	$49.00 to $50.00
No. 2 hvy. melting	39.00 to 40.00
No. 1 dealer bundles	49.00 to 50.00
No. 2 bundles	37.00 to 38.00
No. 1 busheling	49.00 to 50.00
Machine shop turn.	35.00 to 36.00
Shoveling turnings	37.00 to 38.00
Cast iron borings	28.00 to 29.00
Electric furnace bundles	50.00 to 51.00
Elec. furnace, 3 ft & under	47.00 to 48.00
Bar crops and plate	54.00 to 55.00
Structural and plate, 2 ft	54.00 to 55.00
No. 1 RR. hvy. melting	53.00 to 54.00
Scrap rails, random lgth.	59.00 to 60.00
Rails, 18 in. and under	65.00 to 66.00
Angles & splice bars	59.00 to 60.00
Rerolling rails	70.00 to 71.00
No. 1 cupola cast.	53.00 to 54.00
Stove plate	53.00 to 54.00
Charging box cast.	34.00 to 35.00
Cast iron car wheels	46.00 to 47.00
Unstripped motor blocks	44.00 to 45.00

Cincinnati

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$51.00 to $52.00
No. 2 hvy. melting	43.00 to 44.00
No. 1 dealer bundles	51.00 to 52.00
No. 2 bundles	41.00 to 42.00
Machine shop turn.	32.00 to 33.00
Mixed bor. and turn.	30.00 to 31.00
Shoveling turnings	35.00 to 36.00
Cast iron borings	30.00 to 31.00
Low phos. 18 in. & under	56.00 to 57.00
Rails, random lengths	62.00 to 63.00
Rails, 18 in. and under	71.00 to 72.00
No. 1 cupola cast.	45.00 to 46.00
Hvy. breakable cast.	43.00 to 44.00
Drop broken cast.	55.00 to 56.00

San Francisco

No. 1 hvy. melting	$48.00 to $49.00	
No. 2 hvy. melting	45.00 to 47.00	
No. 1 dealer bundles	47.00 to 48.00	
No. 2 bundles	36.00 to 38.00	
Machine shop turn.	....	32.00
Cast iron borings	....	32.00
No. 1 RR. hvy. melting	....	48.00
No. 1 cupola cast.	....	55.00

Los Angeles

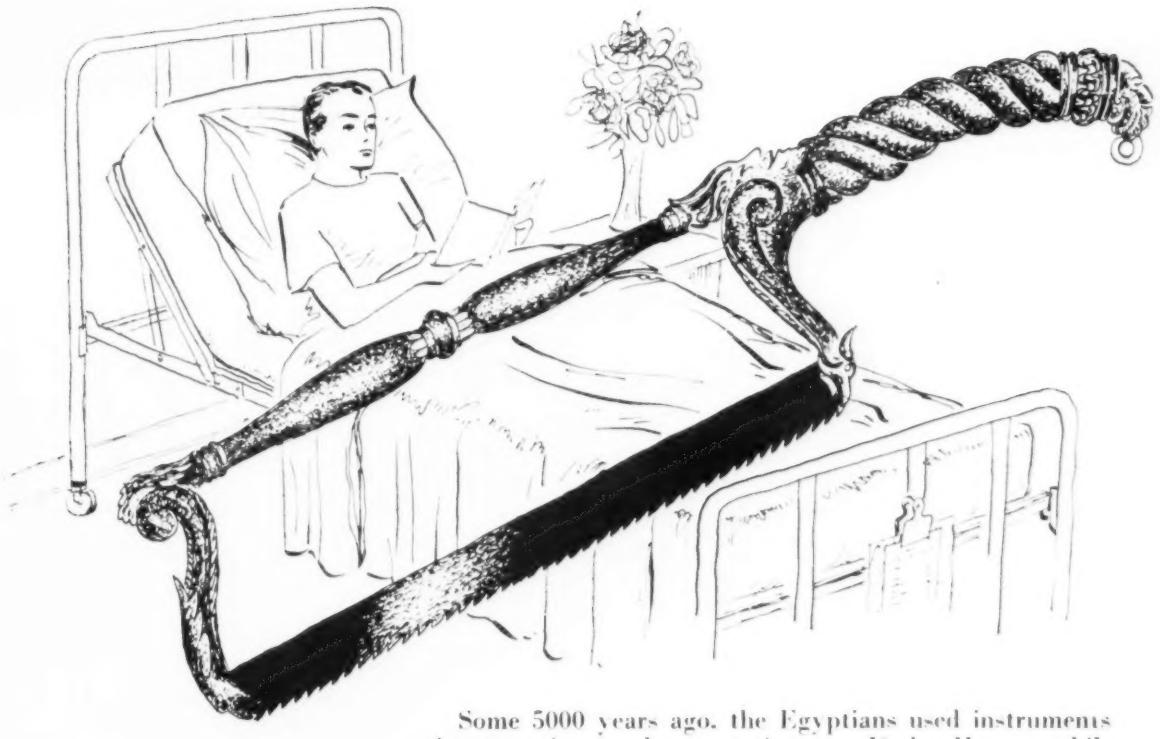
No. 1 hvy. melting	$48.00 to $50.00	
No. 2 hvy. melting	46.00 to 47.00	
No. 1 dealer bundles	....	46.00
No. 2 bundles	....	38.00
Machine shop turn.	....	33.00
Shoveling turnings	....	35.00
Cast iron borings	....	33.00
Elec. furn. 1 ft and under (foundry)	....	61.00
No. 1 RR. hvy. melting	48.00 to	50.00
No. 1 cupola cast.	....	54.00

Seattle

No. 1 hvy. melting	$47.00 to $49.00	
No. 2 hvy. melting	45.00 to 45.00	
No. 2 bundles	30.00 to 32.00	
No. 1 cupola cast.	....	47.00
Mixed yard cast.	....	47.00

Hamilton, Ont.

No. 1 hvy. melting	....	$45.00
No. 2 hvy. melting	....	40.00
No. 1 dealer bundles	....	45.00
No. 2 bundles	....	34.00
Mixed steel scrap	....	42.00
Busheling	....	36.00
Bush., new fact., prep'd	....	45.00
Bush., new fact., unprep'd	....	39.00
Machine shop turn.	....	22.00
Short steel turn.	....	30.00
Mixed bor. and turn.	....	24.00
Rails, rerolling	....	56.00
Cast scrap	....	52.00



speaking of operations

Some 5000 years ago, the Egyptians used instruments for operations and amputations . . . Under Hammurabi's laws, a Babylonian surgeon was awarded 10 shekels of silver for successfully operating on an eye abscess . . . More than 12 centuries before Hippocrates, surgeons in India employed 101 types of instruments, including some for such plastic operations as replacing noses, ears and lips lost in battle.

To Ambroise Paré, a 16th Century Parisian, are credited countless innovations in the art of surgery—and many types of forceps, cauteries, knives, retractors, and other instruments were illustrated in his books.

For today's iron lungs or artificial hearts—for the operation on an appendix or the operation of the country's 7000 hospitals—current needs for instruments, equipment and facilities continue to multiply the demands for steel.

To meet these and a thousand other requirements, an unfailing supply of scrap must be maintained.

For the purchase or sale of iron or steel scrap . . .

phone or write "Your Chicago Broker"

M. S. KAPLAN COMPANY

231 S. LaSalle St., Chicago

Telephone ANdover 3-3900

House Group Sets Tariff Hearings

Ways and Means Committee will hold 2-day hearings on lead, zinc tariff bills.

Industry representatives will present their views.

Trade is still betting that nothing will get through Congress this session.

▪ The House Ways and Means Committee is going to make some effort to wade through the myriad of bills aimed at helping the domestic lead and zinc industry.

Open hearings will be held August 1 and 2 to discuss the general situation, and in particular the Administration-backed sliding scale tariff bills. (The IRON AGE, June 6, 1957, pg. 154.) The sessions will begin about 10 a.m. in a room across the hall from the Ways and Means Committee office (room 1102) in the New House Office Building.

Request to Testify — Tentative schedule calls for proponents of the sliding scale tariffs to present their views on one day, and opponents the next. The committee invited anyone interested to come down and speak his piece. The result was a flurry of requests to testify.

The committee says it will not be able to officially release an agenda until a day or two before the hearings. Neither the American Zinc Institute nor the Lead Industries Assn. is taking part since both have members on both sides of the fence.

Producers' Case—Unofficial word from producers in favor of the sliding scale tariffs is that they will probably let Charles A. Schwab, The Bunker Hill Co., and head of the Washington office of the Emergency Lead and Zinc Committee, present their case.

Producers with foreign interests, and consumers opposed to the tariffs have no organization to speak through. Chances are the committee will select several of the major representatives requesting to testify. Prominently mentioned in this regard is Jean Vuillequez, American Metal Co.

Little Is Expected—Despite this attempt to get some action by the committee, the feeling is still that nothing will pass Congress this session. Best that can be hoped for: A bill might get through the House. But the Senate will almost certainly adjourn before action could be taken. The House bill would then be before the Senate next year.

Copper

The market remains basically quiet, with some selling at current prices—producers for 29.25¢ per lb, custom smelters for 28.50¢. There was some indication of a weaker scrap market. Several major custom smelters said late last week they were offered more scrap than previously. But the weakness didn't last long.

There is still no news from Chile on possible production cutbacks. The Central Bank of Chile says it loses about $6.3 million in revenue from taxes on installations of U. S. subsidiaries for every one-cent drop in the U. S. producers' copper price.

Major mines and smelters in Chile say they were asked to make a special effort to boost output to make up some of this loss. But this is considered only a temporary move. The Copper Dept. of the government has been in special session since late in June, presumably to thrash out whether to cut back production in an effort to tighten the market and, if so, how to do it equitably.

Tin

The market is finely balanced, both in New York and London. It takes very little to move it.

For instance, last week at a monthly luncheon of tin dealers in New York, one dealer bought 200 tons of tin—125 tons of August at 96.75 and 96.875; 50 tons of September at 96.50; and 25 tons of Grade A August for 96.50. The same dealer lent 50 tons of first half August for a like amount of November and 0.75 per lb.

These transactions by one man were enough to steady the market.

Prices will probably fluctuate in a slightly higher range later this quarter. The chairman of the Straits Trading Co., Singapore, has announced that because of the increased costs, smelting charges for tin would have to be increased. But he didn't say how soon.

The prices for the week: July 10—96.75; July 11—96.75; July 12—96.625; July 15—96.00; July 16—96.00.*

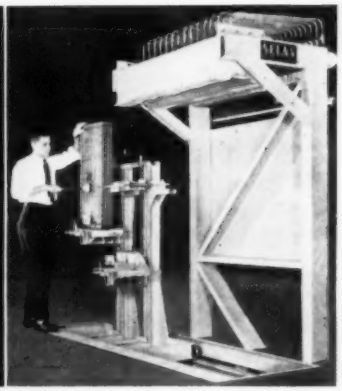
* Estimate.

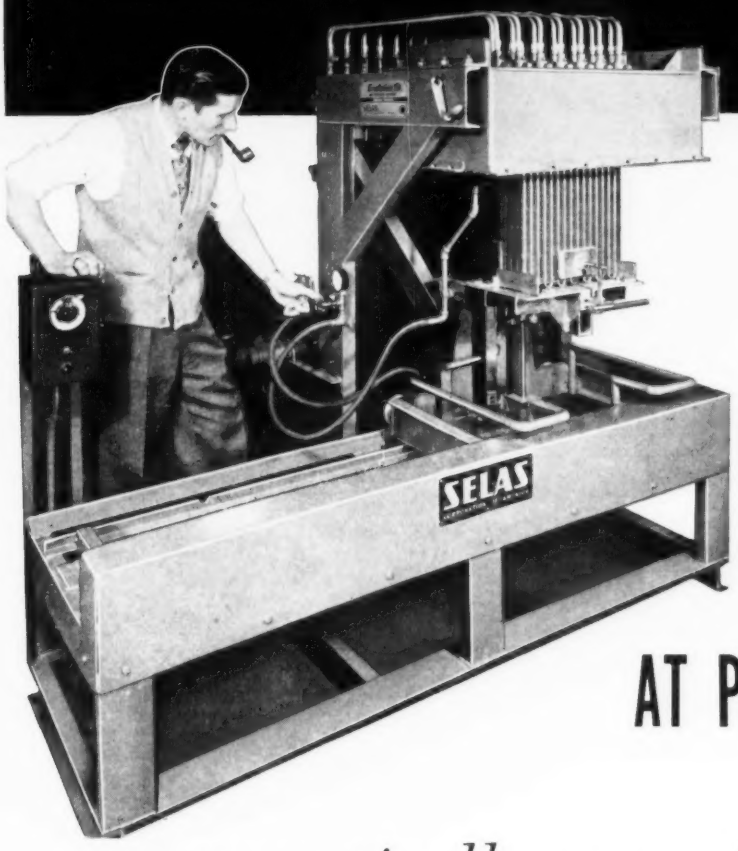
Primary Prices

(cents per lb)	Current price	last price	date of change
Aluminum ingot	27.10	25.90	8 10 56
Aluminum pig	25.00	24.00	8 10 56
Copper (E)	29.25	32.00	6 19 57
Copper (CS)	28.50	29.00	7 1 57
Copper (L)	29.25	32.00	6 19 57
Lead, St. L.	13.80	14.80	6 11 57
Lead, N. Y.	14.00	15.50	6 11 57
Magnesium ingot	36.00	34.09	8 13 56
Magnesium pig	35.25	33.75	8 13 56
Nickel	74.00	64.50	12 6 56
Titanium sponge	200 250	250 275	6 6 57
Zinc, E. St. L.	10.00	10.50	7 1 57
Zinc, N. Y.	10.50	11.00	7 1 57

ALUMINUM: 99% ingot frt allwd. COPPER: (E) = electrolytic, (CS) = custom smelters, electrolytic, (L) = lake. LEAD: common grade. MAGNESIUM: 99.8% pig, Velasco, Tex. NICKEL: Port Colbourne, Canada. ZINC: prime western. TIN: see above; other primary prices, pg. 178.

These Selas-designed, Selas-built brazing machines do essentially the same job . . . silver-brazing tube return-bends to the copper tubes of aluminum-finned coils. Both machines are manually-loaded and unloaded; both employ automatic cycling and Duradiant® air-gas burners. Each is quickly adjusted to accommodate a variety of workpiece sizes, brazing all the joints of each coil simultaneously. The small machine brazes coils from 13 to 22 in. high at the rate of 40 per hr. The larger machine, in which workpieces are mechanically conveyed, handles coils up to 5½ ft. high at the rate of 30 per hr.





AIR-CONDITIONER COILS SELAS-BRAZED AT PRODUCTION RATES

. . . automatically or semi-automatically

Selas precise temperature control and heat placement . . . targeting heat exactly where needed and only where needed . . . brazes coils at high production rates using low-cost gas and air. These specially-designed, custom-tailored machines form pressure-tight brazed joints without damage to the easily-melted aluminum fins. Yet heat input is sufficiently high to overcome, during brazing, the natural ability of heat exchangers to draw heat away from the joint area.

Whatever your brazing needs, Selas will design, engineer and build fully-automatic or semi-automatic equipment for you . . . after simulating your production conditions, using your workpieces, in our laboratory. You get speed, versatility, reproducible uniformity. High labor skills are not required because Selas builds the skills into your machine. And, since Selas designs, constructs, starts-up and services each machine, problems usually associated with divided responsibility are eliminated.

Send for Bulletin No. 18 "Production Brazing and Soldering" and reprints "Gas-Fired Machine Brazing" and "Mechanical Heating Puts Brazing on the Production Line."

SELAS
CORPORATION OF AMERICA
DRESHER, PENNSYLVANIA

Heat and Fluid Processing Engineers

DEVELOPMENT • DESIGN • CONSTRUCTION

NONFERROUS PRICES *(Effective July 16, 1957)*

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

ALUMINUM

(Base 30,000 lb, f.o.b. ship. pt., frt. allowed)

Flat Sheet (Mill Finish) and Plate

("F" temper except 6061-0)

Alloy	.032	.081	.136–.249	.250–3
1800, 1100, 3003	44.3	42.1	40.9	40.2
5052	51.8	46.8	45.1	42.9
6061-0	48.9	44.6	42.8	42.6

Extruded Solid Shapes

Factor	6063 T-5	6062 T-6
6–8	42.7–44.4	57.6–61.1
12–14	43.4–44.8	58.4–62.7
24–26	46.4–46.9	68.7–78.1
36–38	54.8–55.4	91.5–94.9

Screw Machine Stock—2011-T-3

Size*	¼	5/16–⅜	⅞–1	1¼–1½
Price	59.7	58.8	57.4	55.2

Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length*→	72	96	120	144
.010 gage	$1.352	$1.803	$2.254	$2.704
.024 gage	1.686	2.252	2.815	3.378

MAGNESIUM

(F.o.b. shipping Pt., carload frt. allowed)

Sheet and Plate

Type↓ Gage→	.250–3.00	.250–2.00	.188	.081	.032
AZ31B Stand. Grade	.....	67.9	69.0	77.9	108.1
AZ31B Spec	.....	93.3	95.7	108.7	171.3
Tread Plate	.....	70.6	71.7	.....	.....
Tooling Plate	73.0	.....	.....	.....	.....

Extruded Shapes

factor→	6-8	12-14	24-26	36-38
Comm. Grade. (AZ31C)	69.6	70.7	75.6	89.2
Spec. Grade... (AZ31B)	84.6	85.7	90.6	104.2

Alloy Ingot

AZ91B (Die Casting) ..... 37.25 (delivered)
AZ63A AZ92A, AZ91C (Sand Casting) 40.75 (Velasco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	126	106	128
Strip, CR	124	108	138
Rod, bar, HR	107	89	109
Angles, HR	107	89	109
Plates, HR	120	105	121
Seamless tube	157	129	200
Shot, blocks	...	87	...

COPPER, BRASS, BRONZE

(Freight included on 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	51.38	.....	48.61	51.57
Brass, 70/30	44.69	45.23	46.63	47.60
Brass, Low	47.40	47.94	47.34	50.21
Brass, R L	48.36	48.90	48.30	51.17
Brass, Naval	48.85	.....	43.16	52.26
Muntz Metal	46.94	.....	42.75	.....
Comm. Bz.	49.86	50.40	49.80	52.42
Mang. Bz.	52.29	.....	46.69	.....
Phos. Bz. 5%	70.47	.....	70.97	.....

Free Cutting Brass Rod 32.87

TITANIUM

(10,000 lb base, f.o.b. mill)

Sheet and strip, commercially pure, $9.50-$10.60; alloy, $14.75; Plate, HR, commercially pure, $8.00-$8.75; alloy, $10.75. Wire, rolled and drawn, commercially pure, $7.50-$8.00; alloy, $10.00; Bar, HR or forged, commercially pure, $6.15-$6.40; alloy, $6.15-$6.35; billets, HR, commercially pure, $6.00-$6.25; alloy, $6.00-$6.20.

PRIMARY METAL

(Cents per lb, unless otherwise noted)

Antimony, American, Laredo, Tex... 33.50
Beryllium aluminum 5% Be, Dollar per lb contained Be.....$74.75
Beryllium copper, per lb conta'd Be.$43.00
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading.....$71.50
Bismuth, ton lots.....$ 2.25
Cadmium, del'd .....$ 1.70
Calcium, 99.9%, small lots.....$ 4.55
Chromium, 99.8% metallic basis....$ 1.31
Cobalt, 97-99% (per lb)....$2.00 to $2.07
Germanium, per gm, f.o.b. Miami, Okla., refined 39.50-53.50
Gold, U. S. Treas., per troy oz.....$35.00
Indium, 99.9%, dollars per troy oz...$ 2.25
Iridium, dollars per troy oz....$90 to $100
Lithium, 98% .....$11.00 to $14.00
Magnesium, sticks, 100 to 500 lb.... 59.00
Mercury, dollars per 76-lb flask, f.o.b. New York.....$255 to $257
Nickel oxide sinter at Copper Cliff, Ont., contained nickel..... 71.25
Palladium, dollars per troy oz...$23 to $24
Platinum, dollars per troy oz...$92 to $95
Rhodium .....$120.00 to $125.00
Silver ingots (¢ per troy oz.)..... 90.250
Thorium, per kg.....$43.00
Uranium, normal per kg.....$40.00
Vanadium .....$ 3.45
Zirconium sponge $10.00

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5 ingot
No. 115 ..... 29.50
No. 120 ..... 28.50
No. 123 ..... 27.00
80-10-10 ingot
No. 305 ..... 33.50
No. 315 ..... 31.50
88-10-2 ingot
No. 210 ..... 41.25
No. 215 ..... 37.50
No. 245 ..... 33.50
Yellow ingot
No. 405 ..... 24.00
Manganese bronze
No. 421 ..... 27.00

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
0.30 copper max. 24.75-25.75
0.60 copper max. 24.50-25.50
Piston alloys (No. 122 type)..23.00-25.00
No. 12 alum. (No. 2 grade)...21.50-23.00
108 alloy 21.75-23.00
195 alloy 24.50-26.25
13 alloy (0.60 copper max.) ..24.50-25.50
AXS-679 .....21.75-23.00

Steel deoxidizing aluminum, notch bar granulated or shot

Grade 1—95-97½% 23.00-23.50
Grade 2—92-95% 21.25-22.00
Grade 3—90-92% 20.25-21.00
Grade 4—85-90% 19.00-19.75

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	25¼	24½
Yellow brass	19⅛	17⅝
Red brass	22¼	21½
Comm. bronze	23⅛	22⅝
Mang. bronze	17⅝	16⅞
Yellow brass rod ends	18⅞	

Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 25
No. 2 copper wire 23¾
Light copper 20¾
*Refinery brass 22½
Copper bearing material 21½
*Dry copper content

Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 25
No. 2 copper wire 23¾
Light copper 20¾
No. 1 composition 21½
No. 1 comp. turnings 21
Hvy. yellow brass solids 15½
Brass pipe 17½
Radiators 16½

Aluminum

Mixed old cast. ..... 14 —14½
Mixed new clips ..... 15½—16½
Mixed turnings, dry ..... 14½—15½

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

No. 1 copper wire ..... 21 —21⅛
No. 2 copper wire ..... 19½—20
Light copper ..... 17¾—18¼
Auto radiators (unsweated).. 13½—14
No. 1 composition ..... 18½—19
No. 1 composition turnings... 18 —18⅛
Cocks and faucets ..... 14½—15
Clean heavy yellow brass .... 12½—13
Brass pipe ..... 15½—16
New soft brass clippings .... 17 —17⅛
No. 1 brass rod turnings .... 14¼—14¾

Aluminum

Alum. pistons and struts .... 5½— 6
Aluminum crankcases ..... 10½—11
1100 (2S) aluminum clippings 13½—14
Old sheet and utensils ..... 10½—11
Borings and turnings ..... 6½— 7
Industrial castings ..... 10½—11
2024 (24S) Clippings ..... 12 —12⅛

Zinc

New zinc clippings ..... 4 — 4⅛
Old zinc ..... 3 — 3¼
Zinc routings ..... 1¾— 2
Old die cast scrap ..... 1½— 1¾

Nickel and Monel

Pure nickel clippings 85-90
Clean nickel turnings 70-75
Nickel anodes 85-90
Nickel rod ends 85-90
New Monel clippings 45-48
Clean Monel turnings 35-40
Old sheet Monel 44-46
Nickel silver clippings, mixed. 21
Nickel silver turnings, mixed. 18

Lead

Soft scrap lead ..... 9½—10
Battery plates (dry) ..... 4¼— 4⅛
Batteries, acid free ..... 2¾— 3

Miscellaneous

Block tin ..... 75 —76
No. 1 pewter ..... 59 —60
Auto babbitt ..... 39 —40
Mixed common babbitt ..... 11 —11⅛
Solder joints ..... 15½—16
Siphon tops 42
Small foundry type ..... 13 —13⅜
Monotype ..... 13 —13⅜
Lino. and stereotype ..... 12 —12⅛
Electrotype ..... 11 —11¼
Hand picked type shells ..... 8 — 8½
Lino. and stereo. dross ..... 3¾— 4
Electro. dross ..... 3 — 3¼

STEEL PRICES

(Effective July 16, 1957)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. **Extras apply.**

		BILLETS, BLOOMS, SLABS			PILING	SHAPES STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide-Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			$114.00 *B3*		5.325 *B3*	7.80 *B3*	5.325 *B3*						
	Buffalo, N. Y.	$77.50 *R3, B3*	$96.00 *R3, B3*	$114.00 *R3, B3*	6.225 *B3*	5.325 *B3*	7.80 *B3*	5.325 *B3*	4.925 *R3, B3*	7.15 *R7*	7.325 *B3*			
	Claymont, Del.													
	Harrison, N. J.													14.85 *C11*
	Conshohocken, Pa.		$101.00 *A2*	$121.00 *A2*					4.975 *A2*	7.20 *A2*	7.325 *A2*			
	New Bedford, Mass.									7.60 *R6*				
	Johnstown, Pa.	$77.50 *B3*	$96.00 *B3*	$114.00 *B3*		5.325 *B3*	7.80 *B3*							
	Boston, Mass.									7.70 *T8*				15.40 *T8*
	New Haven, Conn.									7.60 *R6*				
	Baltimore, Md.									7.15 *T8*				15.05 *T8*
	Phoenixville, Pa.					5.50 *P2*		5.50 *P2*						
	Sparrows Pt., Md.								4.925 *B3*		7.325 *B3*			
	Bridgeport, Wallingford, Conn.	$82.50 *N8*	$101.00 *N8*	$114.00 *N8*						7.60 *W1* 7.25 *N8*				
	Pawtucket, R. I. Worcester, Mass.									7.70 *A5* 7.90 *N7*				15.20 *T8* 15.40 *N7*
MIDDLE WEST	Alton, Ill.								4.925 *L1*					
	Ashland, Ky.								4.925 *A7*					
	Canton-Massillon, Dover, Ohio		$96.00 *R3*	$114.00 *R3, T5*						7.15 *G4*		10.40 *G4*		14.85 *C11*
	Chicago, Ill. Franklin Park, Ill. Evanston, Ill.	$77.50 *U1, R3*	$96.00 *U1, R3,W8*	$114.00 *U1, R3,W8*	6.225 *U1*	5.275 *U1, W8,P13*	7.75 *U1, Y1* 6.525 *W8*	5.275 *U1*	4.925 *W8, N4,A1*	7.25 *A1,T8, M8*			8.10 *W8, S9,I3*	14.85 *A1, S9,* 15.05 *G4*
	Cleveland, Ohio									7.15 *A5,J3*			8.10 *J3*	
	Detroit, Mich.			$114.00 *R3*					5.025 *G3, M2*	7.25 *M2D1D2 G3,P2,P11*	7.425 *G3*	10.60 *G3, D2*	8.10 *G3*	
	Anderson, Ind.									7.15 *G4*		10.40 *G4*		
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana	$77.50 *U1*	$96.00 *U1*	$114.00 *U1, Y1*	6.225 *I3*	5.275 *U1*	7.75 *U1, I3*	5.25 *I3*	4.925 *U1, I3,Y1*	7.15 *Y1*	7.325 *U1, I3,Y1*	10.50 *Y1*	8.10 *U1, Y1*	
	Sterling, Ill.	$77.50 *N4*				5.275 *N4*			5.025 *N4*					
	Indianapolis, Ind.									7.30 *C5*				
	Newport, Ky.												8.10 *A9*	
	Middletown, Ohio									7.15 *A7*				
	Niles, Warren, Ohio Sharon, Pa.		$96.00 *S1, C10*	$114.00 *C10,S1*					4.925 *R3, S1*	7.15 *R3,T4 S1*	7.325 *R3, S1*	10.30 *S1, R3*	8.10 *S1*	15.05 *S1*
	Pittsburgh, Pa. Midland, Pa. Butler, Pa.	$77.50 *U1, P6*	$96.00 *U1, C11,P6*	$114.00 *U1, C11*	6.225 *U1*	5.275 *U1, J3*	7.75 *U1, J3*	5.275 *U1*	4.925 *P6*	7.15 *J3,B4, S7*			8.10 *S9*	14.85 *S9*
	Portsmouth, Ohio													
	Weirton, Wheeling, Follansbee, W. Va.					5.275 *W3*			4.925 *W3*	7.15 *W3,F3*	7.325 *W3*	10.45 *W3*		
	Youngstown, Ohio	$77.50 *R3*	$96.00 *Y1, C10*	$114.00 *Y1*		5.425 *Y1*	7.75 *Y1*			7.15 *R3,Y1, C5*	7.325 *U1, Y1*	10.50 *Y1*	8.10 *U1, Y1*	
WEST	Fontana, Cal.	$88.00 *K1*	$105.50 *K1*	$135.00 *K1*		6.025 *K1*	8.50 *K1*	6.225 *K1*	5.775 *K1*	9.00 *K1*				
	Geneva, Utah		$96.00 *C7*			5.275 *C7*	7.75 *C7*		5.175 *S2*		7.575 *S2*			
	Kansas City, Mo.					5.375 *S2*	7.85 *S2*							
	Los Angeles, Torrance, Cal.		$105.50 *B2*	$134.00 *B2*		5.975 *C7, B2*	8.45 *B2*		5.675 *C7, B2*				9.30 *B2*	
	Minnequa, Colo.					5.575 *C6*			6.025 *C6*	9.10 *K1*				
	Portland, Ore.					6.025 *O2*								
	San Francisco, Niles, Pittsburg, Cal.		$105.50 *B2*			5.925 *B2*	8.40 *B2*		5.675 *C7, B2*					
	Seattle, Wash.		$105.50 *B2*			6.025 *B2*	8.50 *B2*		5.775 *B2*					
SOUTH	Atlanta, Ga.					5.475 *A8*			5.125 *A8*					
	Fairfield, Ala. City, Birmingham, Ala.	$77.50 *T2*	$96.00 *T2*			5.275 *T2, R5,C16*	7.75 *T2*		4.925 *T2, R5,C16* 5.225 *C10*		7.325 *T2*			
	Houston, Lone Star, Texas		$101.00 *S2*	$119.00 *S2*		5.375 *S2*	7.85 *S2*		5.175 *S2*		7.575 *S2*			

STEEL PRICES

(Effective July 16, 1957)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		SHEETS									WIRE ROD	TINPLATE†		BLACK PLATE
		Hot-rolled 18 ga. & hvyr.	Cold-rolled	Galvanized	Enameling	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot-rolled 19 ga.		Cokes* 1.25-lb. base box	Electro* 0.25-lb. base box	Holloware Enameling 29 ga.
EAST	Bethlehem, Pa.													
	Buffalo, N. Y.	4.925 *B3*	6.05 *B3*				7.275 *B3*	8.975 *B3*			6.15 *W6*	† Special coated mfg. terne deduct 50¢ from 1.25-lb. coke base box price. Can-making quality blackplate 55 to 128 lb. deduct $2.20 from 1.25 lb. coke base box. * COKES: 1.50-lb. add 25¢. ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add $1.00. Differential 1.00 lb./0.25 lb. add 65¢.		
	Claymont, Del.													
	Coatesville, Pa.													
	Conshohocken, Pa.	4.975 *A2*	6.10 *A2*				7.325 *A2*							
	Harrisburg, Pa.													
	Hartford, Conn.													
	Johnstown, Pa.										6.15 *B3*			
	Fairless, Pa.	4.975 *U1*	6.10 *U1*				7.325 *U1*	9.025 *U1*				$10.15 *U1*	$8.95 *U1*	
	New Haven, Conn.													
	Phoenixville, Pa.													
	Sparrows Pt., Md.	4.925 *B3*	6.05 *B3*	6.60 *B3*			7.275 *B3*	8.975 *B3*	9.725 *B3*		6.15 *B3*			
	Worcester, Mass.										6.45 *A5*	$10.15 *B3*	$5.85 *B3*	
	Trenton, N. J.													
MIDDLE WEST	Alton, Ill.										6.35 *L1*			
	Ashland, Ky.	4.925 *A7*		6.60 *A7*	6.625 *A7*									
	Canton-Massillon, Dover, Ohio			6.60 *R3, R1*										
	Chicago, Joliet, Ill.	4.925 *W8, A1*					7.275 *U1*				6.15 *A5, R3, W8, N4, K2*			
	Sterling, Ill.										6.25 *N4, K2*			
	Cleveland, Ohio	4.925 *R3, J3*	6.05 *R3, J3*		6.625 *R3*		7.275 *R3 J3*	8.975 *R3, J3*			6.15 *A5*			
	Detroit, Mich.	5.025 *G3, M2*	6.15 *G3* 6.05 *M2*				7.375 *G2*	9.075 *G3*						
	Newport, Ky.	4.925 *A1*	6.05 *A1*											
	Gary, Ind. Harbor, Indiana	4.925 *U1, I3, Y1*	6.05 *U1, I3, Y1*	6.60 *U1, I3*	6.625 *U1, I3, Y1*	7.00 *U1*	7.275 *U1, Y1, I3*	8.975 *U1, Y1*			6.15 *Y1*	$10.05 *U1, Y1*	$8.75 *I3, U1, Y1*	7.50 *U1, Y1*
	Granite City, Ill.	5.125 *G2*	6.25 *G2*	6.80 *G2*	6.825 *G2*								$8.85 *G2*	7.60 *G2*
	Kokomo, Ind.			6.70 *C9*							6.25 *C9*			
	Mansfield, Ohio		6.05 *E2*			7.00 *E2*								
	Middletown, Ohio	4.925 *A7*	6.05 *A7*	6.60 *A7*	6.625 *A7*	7.00 *A7*	7.275 *A7*							
	Niles, Warren, Ohio Sharon, Pa.	4.925 *R3, N3, S1*	6.05 *R3*	6.60 *R3*	6.625 *N3, S1*	7.00 *N3, S1*	7.275 *R3*	8.975 *S1, R3*					$8.75 *R3*	
	Pittsburgh, Pa. Midland, Pa. Butler, Pa. Donora, Pa.	4.925 *U1, J3, P6*	6.05 *U1, J3, P6*	6.60 *U1, J3*	6.625 *U1*		7.275 *U1, R3, J3*	8.975 *U1, J3*	9.725 *U1*		6.15 *A5, J3, P6*	$10.05 *U1, J3*	$8.75 *U1, J3*	7.50 *U1, J3*
	Portsmouth, Ohio	4.925 *P7*	6.05 *P7*								6.15 *P7*			
	Weirton, Wheeling, Follansbee, W. Va.	4.925 *W3, W5*	6.05 *W3, F3, W5*	6.60 *W3, W5*		7.00 *W3, W5*	7.275 *W3*	8.975 *W3*				$10.05 *W5, W3*	$8.75 *W5, W3*	7.50 *W5*
	Youngstown, Ohio	4.925 *U1, Y1*	6.05 *Y1*		6.625 *Y1*		7.275 *Y1*	8.975 *Y1*			6.15 *Y1*			
WEST	Fontana, Cal.	5.775 *K1*	7.30 *K1*									$10.80 *K1*	$9.50 *K1*	
	Geneva, Utah	5.025 *C7*												
	Kansas City, Mo.										6.40 *S2*			
	Los Angeles, Torrance, Cal.										6.95 *B2*			
	Minnequa, Colo.										6.40 *C6*			
	San Francisco, Niles, Pittsburg, Cal.	5.625 *C7*	7.00 *C7*	7.35 *C7*							6.95 *C7*	$10.80 *C7*	$9.50 *C7*	
	Seattle, Wash.													
SOUTH	Atlanta, Ga.													
	Fairfield, Ala. Alabama City, Ala.	4.925 *T2, R3*	6.05 *T2*	6.60 *T2, R3*							6.15 *T2, R3*	$10.15 *T2*	$8.85 *T2*	
	Houston, Tex.										6.40 *S2*			

STEEL PRICES

(Effective July 16, 1957)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BARS						PLATES				WIRE
		Carbon† Steel	Reinforcing	Cold Finished	Alloy Hot rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr's. Bright
EAST	Bethlehem, Pa.				6.475 *B3*	8.775 *B3*	7.925 *B3*					
	Buffalo, N. Y.	5.425 *R3,B3*	5.425 *R3,B3*	7.30 *R3*,7.35 *B5*	6.475 *B3,R3*	8.775 *B3,B5*	7.925 *B3*	5.10 *B3*				7.65 *W6*
	Claymont, Del.							5.70 *P2*		7.20 *C4*	7.625 *C4*	
	Coatesville, Pa.							5.50 *L4*		7.20 *L4*	7.55 *L4*	
	Conshohocken, Pa.							5.20 *A2*	6.175 *A2*	7.20 *A2*	7.625 *A2*	
	Harriaburg, Pa.							5.80 *P2*	6.275 *P2*			
	Hartford, Conn.			7.90 *R3*		9.075 *R3*	7.925 *B3*					
	Johnstown, Pa.	5.425 *B3*	5.425 *B3*		6.475 *B3*			5.10 *B3*		7.20 *B3*	7.625 *B3*	7.65 *B3*
	Fairless, Pa.	5.575 *U1*	5.575 *U1*		6.625 *U1*							
	Newark, N. J.			7.75 *W10*		8.95 *W10*						
	Camden, N. J.			7.75 *P10*		8.95 *P10*						
	Bridgeport, Conn. Putnam, Conn.	5.650 *N8*	5.650 *N8*	7.85 *W10* 7.65 *N8*	6.550 *N8*	8.925 *N8*	8.00 *N8*					
	Sparrows Pt., Md.		5.425 *B3*					5.10 *B3*		7.20 *B3*	7.20 *B3*	7.75 *B3*
	Palmer, Worcester, Readville, Mass. Milton, Mass.	5.575 *M7*	5.575 *M7*	7.85 *B5,C14*		9.075 *A5,B5*						7.95 *A5, W6*
	Spring City, Pa.			7.75 *K4*		8.950 *K4*						
MIDDLE WEST	Alton, Ill.	5.62 *L1*										7.85 *L1*
	Ashland, Newport, Ky.							5.10 *A7,A1*		7.20 *A1*		
	Canton, Massillon, Ohio			7.30 *R3,R2*	6.475 *R3,T5*	8.775 *R3,R2, T5*						
	Chicago, Joliet, Waukegan, Ill.	5.425 *U1,R3, W8,N4,P13*	5.425 *U1,R3, N4,P13*	7.30 *A5, W10,W8, B5,L2,N9*	6.475 *U1,R3, W8*	8.775 *A5, W10,W8 L2,N9,B5*	7.925 *U1* 6.675 *W8*	5.10 *U1,A1, W8,I3*	6.175 *U1*	7.20 *U1,W8*	7.625 *U1* 7.40 *W8*	7.65 *A5,R3, W8,N4, K2,W7*
	Cleveland, Ohio	5.425 *R3*	5.425 *R3*	7.30 *A5,C13*		8.775 *A5, C13*	7.925 *R3*	5.20 *R3,J3*	6.175 *J3*		7.625 *R3, J3*	7.65 *A5, C13*
	Detroit, Mich.	5.525 *G3*	5.775 *G3*	7.55 *P3* 7.50 *P8,B5*	6.475 *R5* 6.575 *G3*	8.775 *R5* 8.975 *B5,P3, P8*	8.025 *G3*	5.20 *G3*		7.35 *G3*		
	Duluth, Minn.											7.65 *A5*
	Gary, Ind. Harbor, Crawfordsville	5.425 *U1,I3, Y1*	5.425 *U1,I3, Y1*	7.30 *R3,M5*	6.475 *U1,I3, Y1*	8.775 *R3,M4*	7.925 *U1,I3, Y1*	5.10 *U1,I3, Y1*	6.175 *J3,I3*	7.20 *U1,Y1*	7.625 *U1, Y1*	7.75 *M4*
	Granite City, Ill.							5.30 *G2*				
	Kokomo, Ind.											7.75 *C9*
	Sterling, Ill.	5.525 *N4*	5.525 *N4*					5.10 *N4*				7.75 *K2*
	Niles, Warren, Ohio Sharon, Pa.			7.30 *C10*	6.475 *C10,S1*	8.775 *C10*	7.925 *S1*	5.10 *R3,S1*		7.20 *S1*	7.625 *R3, S1*	
	Pittsburgh, Pa. Midland, Pa. Donora, Pa.	5.425 *U1,J3,*	5.425 *U1,J3*	7.30 *A5,B4, R3,J3,C11, W10,S9,C8*	6.475 *U1,J3, C11*	8.775 *A5, W10,R3,S9, C11,C8*	7.925 *U1,J3*	5.10 *U1,J3*	6.175 *U1*	7.20 *U1,J3*	7.625 *U1,J3*	7.65 *A5, J3,P6*
	Portsmouth, Ohio											7.65 *P7*
	Weirton, Wheeling, Follansbee, W. Va.							5.10 *W5*				
	Youngstown, Ohio	5.425 *U1,R3, Y1*	5.425 *U1,R3, Y1*	7.30 *A5,Y1, F2*	6.475 *U1,Y1*	8.775 *Y1,F2*	7.925 *U1,Y1*	5.10 *U1,R3, Y1*		7.20 *Y1*	7.625 *U1, R3,Y1*	7.65 *Y1*
WEST	Emeryville, Cal.	6.175 *J5*	6.175 *J5*									
	Fontana, Cal.	6.125 *K1*	6.125 *K1*		7.525 *K1*		8.625 *K1*	5.85 *K1*		7.95 *K1*	8.375 *K1*	
	Geneva, Utah							5.10 *C7*			7.625 *C7*	
	Kansas City, Mo.	5.675 *S2*	5.675 *S2*		6.725 *S2*		8.175 *S2*					7.90 *S2*
	Los Angeles, Torrance, Cal.	6.125 *C7,B2*	6.125 *C7,B2*	8.75 *R3,P14*	7.525 *B2*	10.65 *P14*	8.625 *B2*					8.66 *B2*
	Minnequa, Colo.	5.875 *C6*	5.875 *C6*					5.95 *C6*				7.90 *C6*
	Portland, Ore.	6.175 *O2*	6.175 *O2*									
	San Francisco, Niles, Pittsburg, Cal.	6.125 *C7* 6.175 *B2*	6.125 *C7* 6.175 *B2*				8.675 *B2*					8.60 *C7,C6*
	Seattle, Wash.	6.175 *B2,N6*	6.175 *B2*				8.675 *B2*	6.00 *B2*		8.10 *B2*	8.525 *B2*	
SOUTH	Atlanta, Ga.†	5.625 *A8*	5.625 *A8*									7.85 *A8*
	Fairfield, Ala. City, Birmingham, Ala.	5.425 *T2,R3 C16*	5.425 *T2,R3, C16*	7.90 *C16*		8.775 *R3*	7.925 *T2*	5.10 *T2,R3*			7.625 *T2*	7.65 *T2,R3*
	Houston, Ft. Worth, Lone Star, Tex.	5.675 *S2*	5.675 *S2*		6.725 *S2*		8.175 *S2*	5.20 *S2* 5.45 *L3*		7.30 *S2*	7.725 *S2*	7.90 *S2*

† Merchant Quality—Special Quality .35¢ higher.

STEEL PRICES *(Effective July 16, 1957)*

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angel Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A9 Acme-Newport Steel Co., Newport, Ky.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brook Plant, Wickwire Spencer Steel Div., Birdsboro, Pa.

C1 Calatrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C5 Cold Metals Products Co., Youngstown, O.
C6 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C12 Cumberland Steel Co., Cumberland, Md.
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C17 Chester Blast Furnace, Inc., Chester, Pa.

D1 Detroit Steel Corp., Detroit
D2 Dearborn Div., Sharon Steel Corp.
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire Steel Co., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.
K4 Keystone Drawn Steel Co., Spring City, Pa.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M5 Monarch Steel Div., Hammond, Ind.
M6 Mystic Iron Works, Everett, Mass.
M7 Milton Steel Products Div., Milton, Pa.
M8 Mill Strip Products Co., Evanston, Ill.

N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Northeastern Steel Corp., Bridgeport, Conn.
N9 Nelson Steel & Wire Co.

O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N.J.
P11 Production Steel Strip Corp., Detroit
P13 Phoenix Mfg. Co., Joliet, Ill.
P14 Pacific Tube Co.

R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 J. & L. Steel Co., Stainless Div.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Div., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw and Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamsport, Pa.
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Corp., Carnegie, Pa.
S10 Seneca Steel Service, Buffalo

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston

U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Div., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
W12 Wallace Barnes Steel Div., Bristol, Conn.

Y1 Youngstown Sheet & Tube Co., Youngstown, O.

PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about $200 per net ton.

STANDARD T. & C.	BUTTWELD														SEAMLESS							
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½ 3 In.		2 In.		2½ In.		3 In.		3½-4 In.	
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
Sparrows Pt. *B3*	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50								
Youngstown *R3*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Fontana *K1*	+8.25	+23.5	+5.25	+19.5	+1.75	+15.60	0.75	+14.25	1.25	+13.25	1.75	+12.75	3.25	+13.00								
Pittsburgh *J3*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
Alton, Ill. *L1*	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50								
Sharon *M3*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Fairless *N2*	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50								
Pittsburgh *N1*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
Wheeling *W5*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Wheatland *W4*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Youngstown *Y1*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
Indiana Harbor *Y1*	4.25	+11.0	7.25	+7.0	10.75	+2.50	13.25	+1.75	13.25	+0.75	14.25	+0.25	15.75	+0.50								
Lorain *N2*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50								
Youngstown *R3*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Fairless *N2*	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50								
Fontana *K1*	+3.75		0.25		3.25		3.75		4.25		4.75		5.25									
Pittsburgh *J3*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50
Alton, Ill. *L1*	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50								
Sharon *M3*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Pittsburgh *N1*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50
Wheeling *W5*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Wheatland *W4*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Youngstown *Y1*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50
Indiana Harbor *Y1*	8.75	+5.0	12.75	+1.0	15.75	3.50	16.25	2.25	16.75	3.25	17.25	3.75	17.75	2.50								
Lorain *N2*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.75	+16.0	2.25	+13.50	7.25	+8.50

Threads only, buttweld and seamless 2¼ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 5½ pt. higher discount

Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ½, ¾ and 1-in., 2 pt.; 1¼, 1½ and 2-in., 1½ pt.; 2½ and 3-in., 1 pt., e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2½ and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 10¢ per lb.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	per lb	SAE
18	4	1	—	—	$1.68	T-1
18	4	1	—	5	2.385	T-4
18	4	2	—	—	1.185	T-2
1.5	4	1.5	8	—	1.04	M-1
6	4	3	6	—	1.43	M-3
6	4	2	5	—	1.185	M-2

High-carbon chromium.. .83 D-3, D-5
Oil hardened manganese .45 O-2
Special carbon ..... .41 W-1
Extra carbon ..... .345 W-1
Regular carbon ..... .29 W-1

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

CLAD STEEL

Base prices, cents per lb f.o.b

Stainless Type	Cladding	Plate (*A3, J2, L4*) 10 pct	Plate (*A3, J2, L4*) 15 pct	Plate (*A3, J2, L4*) 20 pct	Sheet (*I2*) 20 pct
	302				
	304	37.95	42.25	46.70	49.85
	316	44.40	49.50	54.50	54.50
	321	40.05	44.60	49.30	49.30
	347	42.40	47.55	52.80	52.80
	405	29.85	33.35	36.85	36.85
	410	29.55	33.10	36.70	36.70
	430	29.80	33.55	37.25	37.25

CR Strip (S9) Copper, 10 pct, 2 sides, 39.85; 1 side, 33.00.

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled Cut Lengths*	Cold-Reduced Coiled or Cut Length) Semi-Processed	Cold-Reduced Coiled or Cut Length) Fully Processed
Field		9 625	
Armature	11.10	10 85	11.35
Elect.	11.80	11.55	12.05
Hermetic		12.10	
Motor	12.90	12.65	13.15
Dynamo	13.95	14.75	14.20
Trans. 72	15.00		15.25
Trans. 65	15.55		
		Grain Oriented	
Trans. 58	16.05	Trans. 80	19.20
Trans. 52	17.10	Trans. 73	19.70

Producing points: Beech Bottom (*W5*); Brackenridge (*A8*); Granite City (*G2*); Indiana Harbor (*I5*); Mansfield (*E2*); Newport, Ky. (*N5*); Niles, O. (*N3*); Vandergrift (*U1*); Warren, O. (*R3*); Zanesville, Butler (*A7*).

LAKE SUPERIOR ORES

51.50% *Fe natural content, delivered lower Lake ports. Prices for 1957 season. Freight changes for seller's account.*

	Gross Ton
Openhearth lump	$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard Q Coated Nails Col	Woven Wire Fence Col	"T" Fence Posts Col	Single Loop Bale Ties Col	Galv. Barbed and Twisted Barbless Wire Col	Merch. Wire Ann'ld ¢ lb.	Merch. Wire Galv. ¢ lb.
Alabama City *R3*	173	187		212	193	8.65	9.20
Aliquippa *J5***	173	190			190	8.65	9.325
Atlanta *A8***	175			208	199	8.50	9.10
Bartonville *K2***	175	192	178	214	198	8.75	9.425**
Buffalo *W6*							
Chicago *N4****							
Cleveland *A6*							
Cleveland *A5*						8.65	
Crawf'dsv. *M4****	175	192			198	8.75	9.425
Donora, Pa. *A5*	173	187		212	193	8.65	9.20
Duluth *A5*	173	187		212	193	8.65	9.20
Fairfield, Ala. *T2*	173	187		212	193	8.65	9.20
Galveston *D4*	8.95‡						
Houston *S2*	178	192		217	198	8.90	9.45
Johnstown *B3***	173	190**			196**	8.65	9.325**
Joliet, Ill. *A5*	173	187		212	193	8.65	9.20
Kokomo *C9**	175	189*		214	195*	8.75	9.30*
L. Angeles *B2****						9.60	10.275
Kansas City *S2**	178	192*		217	198*	8.90	9.45*
Minnequa *C6†*	178	192†	177	217	198†	8.90	9.45†
Monessen *P6*					193	8.65	9.20
Palmer, Mass. *W6*							
Pittsburg, Cal. *C7*	192	210			213	9.60	10.15
Rankin, Pa. *A5*	173	187			193	8.65	9.20
So. Chicago *R3*	173	187			193	8.65	9.20
S. San Fran. *C6†*				236		9.60	10.15†
SparrowsPt. *B3***	175			214	198	8.75	9.425
Struthers, O. *Y1**							8.65
Worcester *A5*	179					8.95	9.50
Williamsport *S5*							

* Zinc less than .10¢.
** 11-12¢ zinc.
*** .10¢ zinc.
† Plus zinc extras.
‡ Wholesalers only.

WAREHOUSES

Metropolitan Price, dollars per 100 lb.

Cities	City Delivery† Charge	Sheets: Hot-Rolled (18 ga. & hvr.)	Sheets: Cold-Rolled (15 gage)	Sheets: Galvanized (10 gage)††	Strip: Hot-Rolled	Plates	Shapes: Standard Structural	Bars: Hot-Rolled (merchant)	Bars: Hot-Rolled (special quality)	Bars: Cold-Finished	Alloy Bars: Hot-Rolled 4615 As rolled	Alloy Bars: Hot-Rolled 4140 Annealed	Alloy Bars: Cold-Drawn 4615 As rolled	Alloy Bars: Cold-Drawn 4140 Annealed
Atlanta		8.17	9.37	9.83	8.21	8.55	8.59	8.45		10.23				
Baltimore	$.10	7.88	8.98	9.21	8.36	8.26	8.75	8.53		9.13	14.99	14.44	18.39	18.09
Birmingham	.15	8.18	9.45	10.15	8.23	8.56	8.64	8.07	8.60	10.57				
Boston	.10	9.41	10.50	11.56	9.45	9.18	9.69	9.07	9.57		15.79	15.34	19.14	19.14
Buffalo	.15	8.40	9.60	11.25	8.65	9.05	8.65	8.40	8.95	8.85	15.65	14.65	19.01	18.25
Chicago	.15	8.35	9.60	10.29	8.38	8.71	8.79	8.07	8.75	8.95	15.30	14.80	18.65	18.60
Cincinnati	.15	8.49	9.65	10.20	8.69	9.08	8.89	8.53	9.07	9.46	15.61	14.61	18.96	18.21
Cleveland	.15	8.33	9.60	10.10	8.48	8.94	8.57	8.16	8.84	9.20	15.39	14.39	18.74	17.99
Denver		9.70	11.30	12.49	9.80	9.70	9.80	9.95		10.65				17.60
Detroit	.15	8.58	9.85	10.55	8.73	9.06	8.89	8.52	9.05	9.30	15.46	14.56	18.81	18.16
Houston		8.80	9.75		7.75	8.80	8.00	8.05		10.65	15.50		19.30	19.05
Kansas City	.20	8.52	9.72	10.07	8.60	8.83	8.87	8.73		9.42	15.32	14.77	18.72	18.42
Los Angeles	.10	9.60	10.30		9.65	9.65	9.65	9.10	9.65	12.85	16.45	15.60	20.30	19.70
Memphis	.15	8.02	9.22		8.12	8.35	8.39	8.25		9.82				
Milwaukee	.15	8.48	9.73	10.33	8.51	8.84	9.00	8.88	8.71	9.18	15.43	14.93	18.78	18.73
New York	.10	8.97	10.23	10.66	9.41	9.53	9.01	9.67	9.48		15.02	14.69	18.42	18.29
Norfolk	.20	8.00			8.40	8.35	8.70	8.45		10.70				
Philadelphia	.10	8.25	9.17	10.34	8.92	8.78	8.80	8.81	9.18	9.41	15.61	15.11	18.96	18.91
Pittsburgh	.15	8.33	9.60	10.50	8.48	8.71	8.79	8.75	8.75	9.20	15.80	14.80	19.35	18.60
Portland		9.20	11.20	11.55	11.05	9.00	9.35	9.35		13.80	16.70	16.10	20.40	20.25
San Francisco	.10	9.45	10.85	10.65	9.55	9.70	9.60	9.80	9.90	13.10	16.45	15.60	20.30	19.70
Seattle		9.95	11.15	11.60	10.00	9.70	9.80	10.10	9.85	14.05	16.55	15.85	19.50	19.45
Spokane	.15	10.10	11.30	11.65	10.15	9.85	9.95	10.25	10.00	11.20		16.75		20.35
St. Louis	.15	8.69	9.94	10.56	8.74	9.08	9.25	8.43	9.12	9.56	15.66	15.16	19.01	18.96
St. Paul	.15	8.79	10.04	10.66	8.84	9.30	9.38	9.22		9.66		14.62		18.27

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets for quantity.
† 16 gage. †† 10½¢ zinc. ‡ Deduct for country delivery.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT 0.26 0.40	0.41 0.60	0.61 0.80	0.81 1.05	1.06 1.35
Baltimore, Md. *T8*	9.50	10.70	12.90	15.90	18.85
Bristol, Conn. *W12*					
Boston *T8*	9.50	10.70	12.90	15.90	18.85
Buffalo, N. Y. *R7*	8.95	10.40	12.60	15.60	18.55
Carnegie, Pa. *S9*					
Cleveland *A5*					
Dearborn *S1*	9.05	10.50	12.70		
Detroit *D1*	9.05	10.50	12.70		
Detroit *D2*	9.65	10.50	12.70		
Dover, O. *G4*	8.95	10.40	12.60	15.60	18.55
Evanston, Ill. *M8*	9.05	10.40	12.60		
Franklin Park, Ill. *T8*	9.05	10.25	12.45	15.45	18.40
Harrison, N. J. *C11*					
Indianapolis *C5*					
Los Angeles					
New Castle, Pa. *B4*	8.95	10.40	12.60	15.60	
New Haven, Conn. *D1*	9.40	10.70	12.90	15.90	
Pawtucket, R. I. *N7*	9.50	10.70	12.90	15.90	18.85
Pittsburgh *S7*					
Riverdale, Ill. *A1*	9.05	10.40	12.60	15.60	18.55
Sharon, Pa. *S1*					
Trenton *R4*					
Wallingford *W1*	9.40	10.70	12.90	15.90	18.75
Warren, Ohio *T4*					
Worcester, Mass. *A5*					
Youngstown *C5*					

BOILER TUBES

$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size OD-In.	Size B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.	Elec. Weld C.D.
Babcock & Wilcox	2	13	36.34	42.56	33.21	.....
	2½	12	48.94	57.31	44.73	.....
	3	12	56.51	66.18	51.66	.....
	3½	11	65.97	77.25	60.30	.....
	4	10	87.61	102.59	80.07	.....
National Tube	2	13	36.34	42.56	33.21	.....
	2½	12	48.94	57.31	44.73	.....
	3	12	56.51	66.18	51.66	.....
	3½	11	65.97	77.25	60.30	.....
	4	10	87.61	102.59	80.07	.....
Pittsburgh Steel	2	13	36.34	42.56	.....	.....
	2½	12	48.94	57.31	.....	.....
	3	12	56.51	66.18	.....	.....
	3½	11	65.97	77.25	.....	.....
	4	10	87.61	102.59	.....	.....

(Effective July 16, 1957)

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Untreated
Bessemer *Ul*	5.525	6.50	6.975				
Cleveland *R3*							14.75
So. Chicago *R3*				9.75			
Ensley *T2*	5.525	6.50					
Fairfield *T2*		6.50		9.75		6.60	
Gary *Ul*	5.525					6.60	
Huntington *C16*		6.50					
Ind. Harbor *I3*	5.525		6.975	9.75		6.60	
Ind. Harbor *Y1*				9.75			
Johnstown *B3*		6.50					
Joliet *Ul*			6.975				
Kansas City *S2*				9.75			14.75
Lackawanna *B3*	5.525	6.50	6.975			6.60	
Lebanon *B3*							14.75
Minnequa *C6*	5.525	7.00	6.975	9.75		6.60	14.75
Pittsburgh *P5*							14.75
Pittsburgh *J3*				9.75			
Seattle *B2*				10.25		6.75	
Steelton *B3*	5.525		6.975			6.60	
Struthers *Y1*				9.75			
Torrance *C7*						6.75	
Williamsport *S5*							
Youngstown *R3*				9.75			

COKE

Furnace, beehive (f.o.b. oven) Net-Ton
Connellsville, Pa. ..... $15.00 to $15.75
Foundry, beehive (f.o.b. oven) $17.50 to $19.00

Foundry oven coke

Buffalo, del'd	$31.75
Detroit, f.o.b.	30.50
New England, del'd	31.55
Kearney, N. J., f.o.b.	29.75
Philadelphia, f.o.b.	29.50
Swedeland, Pa., f.o.b.	29.50
Painesville, Ohio, f.o.b.	30.50
Erie, Pa., f.o.b.	30.50
Cleveland, del'd	32.65
Cincinnati, del'd	31.84
St. Paul, f.o.b.	29.75
St. Louis, f.o.b.	31.50
Birmingham, f.o.b.	28.85
Milwaukee, f.o.b.	30.50
Neville, Is., Pa.	29.25

ELECTRODES

Cents per lb. f.o.b. plant, threaded, with nipples, unbored.

GRAPHITE			CARBON*		
Diam. (In.)	Length (In.)	Price	Diam. (In.)	Length (In.)	Price
24	84	24.75	40	100,110	10.70
20	72	24.00	35	110	10.70
16 to 18	72	24.50	30	110	10.85
14	72	25.00	24	72 to 84	11.25
12	72	25.50	20	90	11.00
10	60	26.50	17	72	11.40
10	48	27.00	14	72	11.85
7	60	26.75	12	60	12.95
6	60	30.00	10	60	13.00
4	40	33.25	8	60	13.30
3	40	35.25			
2½	30	37.25			
2	24	57.75			

* Prices shown cover carbon nipples.

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, frt allowed in quantity)

Copper
Cast elliptical, 18 in. or longer, 5000 lb lots 45.75
Electrodeposited 37.00
Brass, 80-20, ball anodes, 2000 lb or more 48.00
Zinc, ball anodes, 2000 lb lots 18.00
(for elliptical add 2¢ per lb)
Nickel, 99 pct plus, rolled carbon, 5000 lb 102.25
(Rolled depolarized add 3¢ per lb)
Cadmium 1.70
Tin, ball anodes and elliptical $1.07 per in.

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum 74.80
Copper sulphate, 100 lb bags, per cwt. 24.35
Nickel salts, single, 100 lb bags ... 40.50
Nickel chloride, freight allowed, 300 lb 45.50
Sodium cyanide, domestic, f.o.b. N. Y., 200 lb drums 23.05
(Philadelphia price 23.30)
Zinc cyanide, 100 lb 59.00
Potassium cyanide, 100 lb drum N. Y. 48.00
Chromic acid, flake type, 100,000 lb or more 31.00

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Machine and Carriage Bolts	Pct Discounts: Full Container Price	30 Containers	20,000 Lb.	40,000 Lb.
½" and smaller x 6" and shorter	49	54	56	57
⅝" thru 1" x longer than 6"	35	40	43	45
Rolled thread carriage bolts ½" & smaller x 6" and shorter	49	54	56	57
Lag, all diam. x 6" & shorter	49	54	56	57
Lag, all diam. longer than 6 in.	39	44½	47	48½
Plow bolts, ½" and smaller x 6" and shorter	49	54	56	57

(Add 25 pct for broken case quantities)

Nuts, Hex, HP reg. & hvy.

	Full case or Keg price
¾ in. or smaller	60½
⅞ in. to 1 in. inclusive	55½
1⅛ in. to 1½ in. inclusive	58½
1⅝ in. and larger	53½

C. P. Hex reg. & hvy.

¾ in. and smaller	60½
⅞ in. to 1½ in. inclusive	55½
1⅝ in. and larger	53½

Hot Galv. Hex Nuts (All Types)

¾ in. and smaller	46½

Semi-finished Hex Nuts

⅝ in. or smaller	60½
¾ in. to 1½ in. inclusive	55½
1⅝ in. and larger	53½

(Add 25 pct for broken case or keg quantities)

Finished

⅞ in. and smaller	63

Rivets

	Base per 100 lb
½ in. and larger	$12.25
	Pct Off List
7/16 in. and smaller	19

Cap Screws

New std. hex head, packaged	Discount (Packages) Full Finished H. C. Heat Treat
⅝" diam. and smaller x 6" and shorter	40
¾" ⅞" and 1" diam. x 6" and shorter	22
⅝" diam. and smaller x longer than 6"	8
¾", ⅞", and 1" diam. x longer than 6"	+ 6

	C-1018 Steel Full-Finished Cartons	Bulk
¼" through ⅝" dia. x 6" and shorter	58	49
¾" through 1" dia. x 6" and shorter	45	33

Minimum quantity—¼" through ⅜" diam., 15,000 pieces; 7/16" through ⅝" diam., 5,000 pieces; ¾" through 1" diam., 2,000 pieces.

Machine Screws & Stove Bolts

	Quantity	Discount Mach. Screws	Stove Bolts
Plain Finish Cartons		19	32
Bulk			
To ¼" diam. incl.	25,000-200,000	9	54
5/16 to ½" diam. incl.	15,000-100,000	9	54
All diam. over 3" long	5,000-100,000	—	54

Machine Screws & Stove Bolt Nuts

	Quantity	Discount Hex	Square
In cartons		16	19
In Bulk ⅜" diam. & smaller	15,000-100,000	7	9

CAST IRON WATER PIPE INDEX

Birmingham	119.0
New York	131.7
Chicago	134.1
San Francisco-L. A.	141.8

Dec. 1955 value, Class B or heavier 5 in. or larger, bell and spigot pipe. Explanation: p. 57, Sept. 1, 1955, issue. Source: U. S. Pipe and Foundry Co.

REFRACTORIES

Fire Clay Brick

	Carloads per 1000
First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5.00)	$135.00
No. 1 Ohio	120.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	120.00
No. 2 Ohio	103.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $2.00)	21.50

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$150.00
Childs, Hays, Pa.	155.00
Chicago District	160.00
Western Utah	175.00
California	180.00
Super Duty Hays, Pa., Athens, Tex., Windham, Warren, O., Morrisville	157.00-160.00
Silica cement, net ton, bulk, Latrobe	28.50
Silica cement, net ton, bulk, Chicago	25.50
Silica cement, net ton, bulk, Ensley, Ala.	26.50
Silica cement, net ton, bulk, Mt. Union	24.50
Silica cement, net ton, bulk, Utah and Calif.	37.00

Chrome Brick

Per net ton

Standard chemically bonded, Balt.	$105.00
Standards chemically bonded, Curtiner, Calif.	115.00
Burned, Balt.	99.00

Magnesite Brick

Standard, Baltimore	$131.00
Chemically bonded, Baltimore	116.00

Grain Magnesite St. ⅜ to ½-in. grains

Domestic, f.o.b. Baltimore in bulk	$73.00
Domestic, f.o.b. Chewalah, Wash., Luning, Nev.	
in bulk	46.00
in sacks	52.00-54.00

Dead Burned Dolomite

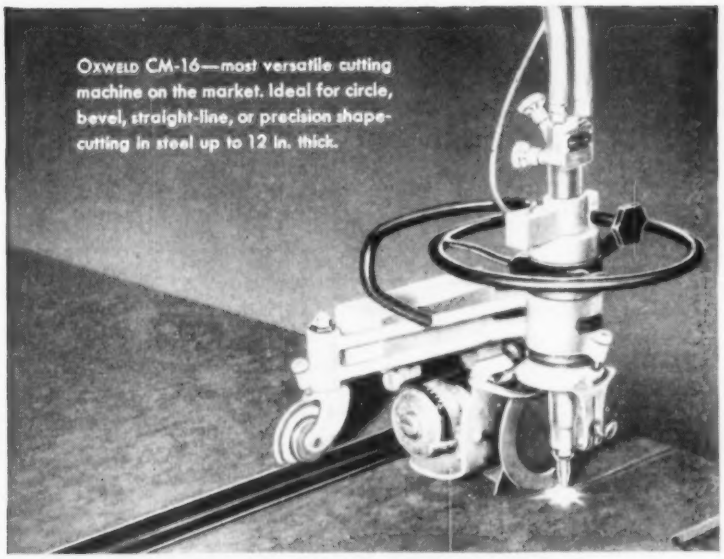
Per net ton

F.o.b. bulk, producing points in:	
Pa., W. Va., Ohio	$16.00
Midwest	16.35
Missouri Valley	15.00

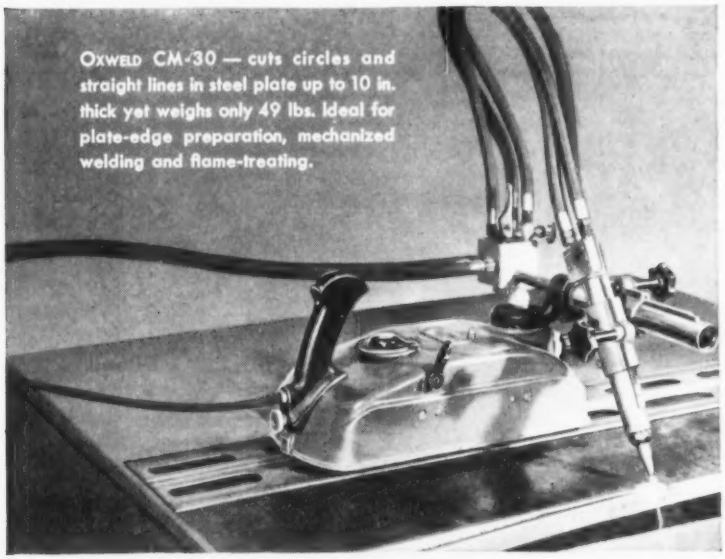
METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh

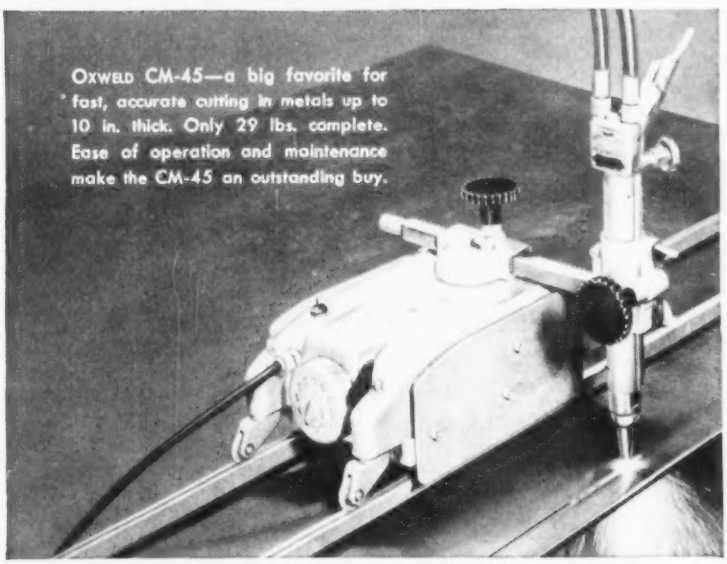
Swedish sponge iron, del. East of Miss. River, ocean bags, 23,000 lb. and over	10.5¢
F.O.B. Riverton or Camden, New Jersey, West of Miss. River	9.5¢
Domestic sponge iron, 98+% Fe, 23,000 lb. and over del'd East of Miss. River	10.5¢
F.O.B. Riverton, New Jersey, West of Miss. River	9.5¢
Canadian sponge iron, del'd in East, carloads	9.5¢
Electrolytic iron, annealed, imported 99.5+% Fe	27.5¢
domestic 99.5+% Fe	36.5¢
Electrolytic iron, unannealed minus 325 mesh, 99+% Fe	57.0¢
Electrolytic iron melting stock, 99.84% pure	22.0¢
Carbonyl iron size 3 to 20 micron, 98%, 99.8+% Fe	88.0¢ to $2.90
Aluminum, freight allowed	38.00¢
Brass, 10 ton lots	37.4¢ to 41.5¢
Copper electrolytic	45.75¢
Copper, reduced	49.75¢
Cadmium, 100-199 lb. 95¢ plus metal value	
Chromium, electrolytic, 99.85% min. Fe .03 max. Del'd	$5.00
Lead	8.90¢ plus metal value
Manganese f.o.b. Extron, Pa.	46.0¢
Molybdenum, 99%	$3.60 to $3.95
Nickel, chemically precipitated	$1.05
Nickel, unannealed	$1.00
Nickel, annealed	$1.06
Nickel, spherical, unannealed ±80	$1.13
Silicon	43.50¢
Solder powder, 7.0¢ to 9.0¢ plus met. value	
Stainless steel, 302	$1.02
Stainless steel, 316	$1.20
Tin	14.00¢ plus metal value
Tungsten, 99% (65 mesh) $3.75 (nominal)	
Zinc, 10 ton lots	18.5¢ to 31.7¢



OXWELD CM-16—most versatile cutting machine on the market. Ideal for circle, bevel, straight-line, or precision shape-cutting in steel up to 12 in. thick.



OXWELD CM-30 — cuts circles and straight lines in steel plate up to 10 in. thick yet weighs only 49 lbs. Ideal for plate-edge preparation, mechanized welding and flame-treating.



OXWELD CM-45—a big favorite for fast, accurate cutting in metals up to 10 in. thick. Only 29 lbs. complete. Ease of operation and maintenance make the CM-45 an outstanding buy.

cutting holes in production costs

OXWELD

Trade-Mark

PORTABLE CUTTING MACHINES

Here's the modern, efficient way to slash maintenance and production costs —*mechanized* flame-cutting with OXWELD Portable Cutting Machines. These versatile machines offer you a matchless combination of speed, production-line accuracy, and low-cost operation — a combination that adds up to greater savings for you on every cutting job.

And like every OXWELD product, OXWELD Cutting Machines are backed by half a century of experience and know-how . . . your guarantee of peak performance and quality results.

Ask your nearby LINDE representative to show you the *complete* line of dependable OXWELD Portable Cutting Machines — or write for free catalog F-4487. Do it today!

LINDE COMPANY

DIVISION OF

UNION CARBIDE CORPORATION

30 East 42nd Street, New York 17, N. Y.

In Canada: LINDE COMPANY, Division of Union Carbide Canada Limited, Toronto

"Linde," "Oxweld," and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

FERROALLOY PRICES

(Effective July 16, 1957)

Ferrochrome

Contract prices, cents per lb contained Cr, lump, bulk, carloads, del'd. 67-71% Cr, .30-1.00% max. Si.

0.02% C	41.50	0.20% C	38.50
0.03% C	41.00	0.50% C	38.25
0.06% C	39.50	1.00% C	37.50
0.10% C	39.00	1.50% C	37.35
0.15% C	38.75	2.00% C	37.25

4.00-4.50% C, 67.50% Cr, 1-2% Si ... 27.75
3.50-5.00% C, 57-64% Cr, 2.00-4.50% Si ... 26.50
0.025% C (Simplex) ... 34.75
0.10% C, 50-52% Cr, 2% max Si ... 35.50
8.50% max C, 50-55% Cr, 3-6% Si ... 24.00
8.50% C, 50-55% Cr, 3% max. Si ... 24.00

High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max 0.10% C price schedule. Add 5¢ for each additional 0.25% of N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.

0.10% max. C	$1.31
0.50% max. C	1.31
9 to 11% C, 88-91% Cr, 0.75% Fe	1.40

Electrolytic Chromium Metal

Contract prices per lb of metal 2" x D plate (⅜" thick) delivered packed, 99.80% min. Cr. (Metallic Base) Fe 0.20 max.

Carloads	$1.29
Ton lots	1.31
Less ton lots	1.33

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-45%, C 0.05% max.) Contract price, carloads, delivered, lump, 3-in. x down, per lb of Cr, packed.

Carloads	44.65
Ton lots	48.95
Less ton lots	51.45

Calcium-Silicon

Contract price per lb of alloy, lump, delivered, packed.

30-33% Ca, 60-65% Si, 3.00 max. Fe.

Carloads	25.65
Ton lots	27.95
Less ton lots	29.45

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered, packed.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	24.25
Ton lots	26.15
Less ton lots	27.15

SMZ

Contract prices, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh.

Ton lots	20.15
Less ton lots	21.40

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.

Carload lots	17.20
Ton lots	18.70
Less ton lots	19.95

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	18.50
Ton lots to carload packed	19.65
Less ton lots	20.90

Ferromanganese

Maximum contract base price, f.o.b., lump size, base content 74 to 76 pct Mn.

	Cents per-lb
Producing Point	
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	12.75
Johnstown, Pa.	12.75
Sheridan, Pa.	12.75
Philo, Ohio	12.75
S. Duquesne	12.75

Add or subtract 0.1¢ for each 1 pct Mn above or below base content.

Briquets, delivered, 66 pct Mn:

Carloads, bulk	14.80
Ton lots packed	17.20

Spiegeleisen

Contract prices, per gross ton, lump, f.o.b. Palmerton, Pa.

Manganese	Silicon	
16 to 19%	3% max.	$100.50
19 to 21%	3% max.	102.50
21 to 23%	3% max.	105.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal delivered.

95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed	45.75
Ton lots	47.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.

Carloads	34.00
Ton lots	36.00
250 to 1999 lb	38.00
Premium for Hydrogen-removed metal	0.75

Medium Carbon Ferromanganese

Mn 80 to 85%, C 1.25 to 1.50, Si 1.50% max. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn ... 25.50

Low-Carb Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	37.15	39.95	41.15
0.07% max. C	35.10	37.90	39.10
0.10% max. C	34.35	37.15	38.35
0.15% max. C	33.60	36.40	37.60
0.30% max. C	32.10	34.90	36.10
0.50% max. C	31.60	34.40	35.60
0.75% max. C, 80-85% Mn, 5.0-7.0% Si	28.60	31.40	32.60

Silicomanganese

Contract basis, lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢ f.o.b. shipping point.

Carloads bulk	12.80
Ton lots, packed	14.45
Briquet contract basis carloads, bulk, delivered, per lb of briquet	15.10
Ton lots, packed, pallets	16.59

Silvery Iron (electric furnace)

Si 15.50 to 16.00 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $106.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $93.00.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, packed.

	Ton lots, packed	Carloads, packed
96.75% Si, 1.25% Fe	22.20	20.90
98% Si, 0.75% Fe	22.95	21.65

Silicon Briquets

Contract price, cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si, briquets.

Carloads, bulk	7.70
Ton lots, packed	10.50

Electric Ferrosilicon

Contract prices, cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.

50% Si	13.00	75% Si	16.40
65% Si	15.25	85% Si	18.10
		90% Si	19.50

Ferrovanadium

35-55% V contract, basis, delivered, per pound, contained V, carloads, packed.

Openhearth	3.20
Crucible	3.30
High speed steel (Primos)	3.40

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.55

Alsiter, 20% Al, 40% Si, 40% Fe. Contract basis, f.o.b. Suspension Bridge, N. Y., per lb.

Carloads	10.65¢
Ton lots	11.80

Calcium molybdate, 43.6-46.6% f.o.b. Langeloth, Pa., per pound Contained Mo ... $1.28

Ferrocolumbium, 50-50%, 2 in. x D contract basis, delivered per pound contained Cb.

Ton lots	$4.90
Less ton lots	4.95

Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, contract basis, del'd ton lots, 2-in. x D per lb con't Sb plus Ta ... $4.25

Ferromolybdenum, 55-75%, 200-lb containers, f.o.b. Langeloth Pa., per pound contained Mo ... $1.68

Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $4.00 unitage, per gross ton ... $90.00
10 tons to less carload ... $110.00

Ferrotitanium, 40% regular grade 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti ... $1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti ... $1.50
Less ton lots ... $1.54

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton ... $240.00

Ferrotungsten, ¼ x down packed, per pounds contained W, ton lots delivered ... $2.60 (nominal)

Molybdic oxide, briquets per lb contained Mo, f.o.b. Langeloth, Pa. ... $1.41
bags, f.o.b. Washington, Pa. Langeloth, Pa. ... $1.33

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per lb.

Carload, bulk lump	18.50¢
Ton lots, packed lump	20.50¢
Less ton lots	21.00¢

Vanadium oxide, 86-89% V_2O_5 contract, basis, per pound contained V_2O_5 ... $1.38

Zirconium contract basis per lb of alloy

35-40% f.o.b. freight allowed, carloads, packed	27.25¢
12-15%, del'd lump, bulk-carloads	9.25¢

Boron Agents

Borosil, contract prices per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B
2000 lb carload ... $5.50

Bortam, f.o.b. Niagara Falls,

Ton lots per pound	45¢
Less ton lots, per pound	50¢

Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b., Suspension Bridge, N. Y., freight allowed.
Ton lots per pound ... 14.00¢

Ferroboron, 17.50 min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, ton lots ... $1.20
F.o.b. Wash., Pa., Niagara Falls, N. Y., delivered 100 lb up

10 to 14% B	.85
14 to 19%	1.20
19% min. B	1.50

Grainal, f.o.b. Bridgeville, Pa., freight, allowed, 100 lb and over

No. 1	$1.05
No. 79	50¢

Manganese-Boron, 75.00% Mn, 15.20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd.

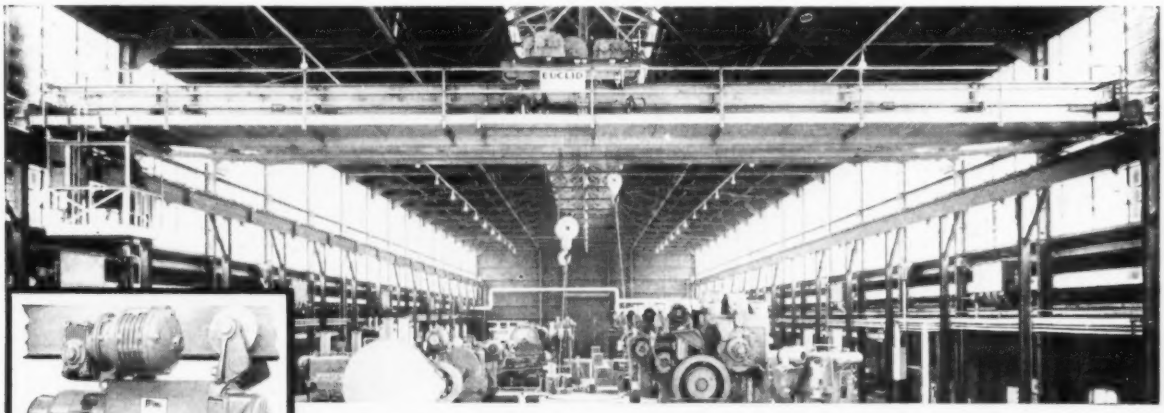
Ton lots	$1.46
Less ton lots	1.57

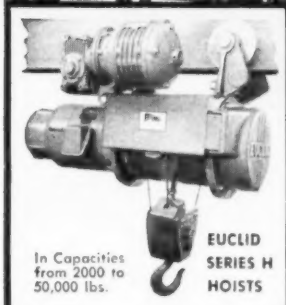
Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd less ton lots ... $2.15

that "NEEDED LIFT" can come from EUCLID CRANES & HOISTS TO "RAISE PROFITS"

You name the job or jobs to be done! We'll supply a crane or cranes that will do it. Standard Models in a wide range of styles, sizes and capacities will generally meet your requirements. If not, we'll engineer and build what you need. We've been doing it for more than 40 years.

GET A EUCLID PROPOSAL





In Capacities from 2000 to 50,000 lbs.

EUCLID SERIES H HOISTS

EUCLID HOISTS are highly efficient and strictly modern in every detail with oversize anti-friction bearings and heat treated steel parts in combination with a welded frame.

The planetary gearing and mechanical load brake are mounted in oil tight housings. The hoist gearing is assembled in the hoist drum.

This design produces an unusual compact, rugged and accessible hoist readily adapted to various installations and types of control.

for Details & Catalog, write

THE EUCLID CRANE & HOIST COMPANY
1361 CHARDON ROAD • CLEVELAND 17, OHIO

WILLIAMS-WHITE

Hydraulic Presses—Custom Built to Your Specifications

WILLIAMS-WHITE Hydraulic Presses represent the peak of up-to-date design and master craftsmanship. They are the result of 103 years of machinery building experience. This experience and our staff of engineers and designers are available to you without obligation. We invite you to discuss your requirements with us before you buy!

REPRESENTATIVES

CALIFORNIA, Los Angeles: George A. Davies Mach'y Co.
ILLINOIS, Chicago: WILLIAMS-WHITE & CO., 53 W. Jackson Blvd.
MICHIGAN, Detroit: E. E. Wood Mach'y Co.
OHIO, Cincinnati: Columbus or Dayton: Seifreat-Elstad Mach'y Co.
Cleveland: A. L. Bechtel & Son
OREGON, Portland: Allied Northwest Mach. Tool Corp.
PENNSYLVANIA, Pittsburgh: Frank Ryman's Sons
Wynnewood (Phila.): Edw. A. Lynch Mach'y Co.
WASHINGTON, Seattle: Perine Mach'y & Supply Co.
WISCONSIN, Milwaukee: Pagel Mach'y Co.

BUILDERS OF MACHINERY SINCE 1854

WILLIAMS-WHITE & Co.
302 EIGHTH ST. • MOLINE, ILLINOIS
PRESSES • BULLDOZERS • BENDERS • PUNCHES • SHEARS

RAILWAY EQUIPMENT

FOR SALE

Used - As Is - Reconditioned

RAILWAY CARS

All Types

SERVICE-TESTED

FREIGHT CAR REPAIR PARTS

For All Types of Cars

LOCOMOTIVES

Diesel, Steam, Gasoline
Diesel-Electric

SPECIAL

STANDARD GAUGE CARS

10—Air-Operated, 30-Bubic Yard, Drop Door
SIDE DUMP CARS

ORE HOPPER CARS

20—40-Ton Capacity
4—50-Ton Capacity

COVERED HOPPER CARS

15—70-Ton Capacity

RAILWAY TANK CARS and STORAGE TANKS

6,000- 8,000- and 10,000-Gallon
Cleaned and Tested

CRANES

Overhead and Locomotive

IRON & STEEL PRODUCTS, Inc.

General Office
13496 S. Brainard Ave.
Chicago 33, Illinois
Phone: Mitchell 6-1212

New York Office
50-B Church Street
New York 7, N. Y.
Phone: BEekman 3-8230

"ANYTHING containing IRON or STEEL"

Sales Hold Strong In Chicago Area

Used machine dealers pleased as purchases resist influence of normal summer slowdown.

Fabricating and heavier production items supply the market's steam. Toolroom equipment is moving fairly well.

▪ Used tools in the Midwest continue to hold at a surprisingly strong sales rate, particularly since the industry is well into July, usually one of its slower months. A few dealers had expressed concern in early June, when for at least two weeks, sharp drops in toolroom equipment demand threw a few equipment sellers off their stride.

Many of those who worried earlier are commenting that the sales situation steadied later in the month, is currently strong, and that inquiries seem to be holding up. In a few cases, notably among larger used tool distributors, there has been an actual gain in the inquiry rate.

Fabricating Tools Strong—Taking the picture apart, it appears toolroom equipment hasn't helped to lift general used tool sales levels in the latter part of the first half of 1957. The big boost has come from fabricating equipment (again this month a very hot item, with a very high level of equipment exchange between dealers) and heavier production equipment.

Big millers, boring machines, heavy lathes, have held strongly for a long time. But they've been hard to stock for resale. Fabricating equipment was a little easier earlier this year. Some dealers were able to boost stocks of this equipment, even if only slightly. Now, with a strong surge in fabricating equipment demand, they are enjoying the rewards of some farsighted spring buying.

Toolroom equipment sales are certainly no cause for alarm. But it's significant that some smaller shops specializing in equipment in this category are out beating the bushes for sales. Thus far, they've been doing fairly well, considering that the plant vacation season is here. But it's taken work. Now, they're planning to sell even harder, including some brand-new efforts in direct mail selling.

Profits Falloff—Generally, dollar volume is expected to run a close second to dollar volume one year ago in the July-August period. Unit volume will not be as high, and profits, with a few exceptions, are steadying after a decline earlier this year. It's doubtful that profits will compare with a year ago.

Sales Survey — Brakes, shears, heavy punches, heavy lathes, milling and boring equipment are moving strongly and at good prices. The out-of-area sales rate and inquiry rates are holding strongly in the Midwest and, for the first time, there seems to be some indication that sales into the Ohio-Michigan area are picking up slightly.

Reports of selling into the South vary widely. The St. Louis-Kansas City areas aren't showing strong activity yet for most tool lines, though some heavy fabricating equipment has moved into that area and apparently at strong prices.

CONSIDER GOOD USED EQUIPMENT FIRST

AIR COMPRESSOR
450 cu. ft. Ingersoll Rand XRE, 100# Pressure 100 H.P. Westinghouse Motor 440/3/60.
BENDER & STRAIGHTENER
Pels Type JH-26 Bends & Straightens Beams 15x5.84 x60 lb., Angles Equal 8x8x⅞", etc.
BENDING ROLLS
10' x ½" Kling Pyramid Type—LATE
16' x ⅝" Ransome, Pyramid Type
20' x 1" Hilles & Jones Pyramid Type
BRAKES—LEAF TYPE
8' x 3/16" Dreis & Krump
12' x ¼" Dreis & Krump
12' x ½" Dreis & Krump No. 228
BRAKE—PRESS TYPE
14' x ¼" Superior Hydraulic—NEW
BUILDINGS
70' x 760' x 39'
50' x 325' x 24'
BULLDOZERS
#7 Ajax, 22" Stroke, 12"x65" Face of Crosshead
#27 W&W 22" Stroke, 16x80" Face of Crosshead
CORRUGATING MACHINE
12" Stanco Corrugating Machine Rolls 24" Dia.
CRANES—OVERHEAD ELECTRIC TRAVELING

3 ton P&H	56' Span 220/3/60
5 ton Whiting	48' Span 230/3/60 A.C.
5 ton Case	59' Span 220/3/25
8 ton P&H	55' Span 220/3/60
10 ton Shepard Niles	58' Span 440/3/60
15 ton Shepard Niles	52' Span 230 Volt D.C.
15 ton Shepard Niles	37' Span 220/440 A.C.
15 ton Shepard Niles	55' Span 220/440 A.C.
15 ton Niles	75' Span 220/3/60
20 ton P&H	57' Span 220/440 A.C.

DIEING MACHINE
60-ton Henry & Wright, Roll Feed, Scrap Cutter 4" Stroke, NEW 1950
DRAW BENCH
10,000# Aetna Standard Single Draw Tube Draw Bench 14 Ft. Max. Length of Draw
FORGING MACHINES
1" to 5" Acme, Ajax, National
HAMMERS—BROAD DROP—STEAM DROP—STEAM FORGING—800 lb. to 20,000 lb.
LEVELERS—ROLLER
25" Torrington, 19 Roll 1-31/32" Dia. Backed up
12" Bliss Capacity .125", LATE
51 McKay, 17 Rolls, 3⅜" Dia.
PLANER—PLATE EDGE
25' Southwark, 16 Pneu. Jacks, Capy. 1⅛"
PRESSES—HYDRAULIC
2000 ton Bliss Hydro-Dynamic, 18" Stroke Bed Area 54" x 55"
4500 Baldwin-Lima-Hamilton Hydr. Forging Press
PRESSES—TOGGLE DRAWING
#33½ Bliss 125 ton, Bolster 19" x 26"
#1018 Bliss 1550", Die Space 60" x 72"
PUNCH & SHEAR COMBINATIONS
Cleveland Style G Single End, 60" Throat
Cleveland Style W, 60" Throat
No. 1½" Buffalo Universal Ironworker
ROLLING MILLS
6" x 5" Torrington Wire Flattening Mill Line
10" x 14" Single Stand Two High
10" x 16" Single Stand Two High
12" x 12" Single Stand Two High
12" x 16" Single Stand Two High
16" x 30" Farrel Two Stand Two High
26" x 72" Cold Rolling Mill
SHEAR—ALLIGATOR
No. 1 Mesta RH LK, Capacity 2" x 12"
SHEAR—BAR
48" Mesta Bar Shear, Capacity 1" x 35" Slabs Hot
SHEAR—GATE
12' x ¾" Niagara Model 1212, NEW 1951
SHEAR LINES
36" Hilden Sheet Line
60" Sheet Line, With Leveller & Tables
96" x 11 Ga. Cleveland, With Playoff, Leveller, Elect.
SHEARS—SQUARING
6' x 10 Ga. Niagara No. 672
8' x ¾" Niagara—NEW 1952
10' x ¼" Cincinnati #1810
10' x ¾" Cincinnati #2510
ROLLS—PLATE STRAIGHTENING
72" Hilles & Jones 6 Rolls 11" Dia.
60" Niles Bement-P 7 Rolls 10¾" Dia.
SHEARS—ANGLE
6x6x⅝" Hilles & Jones
4x4x⅝" Long & Allstatter
SLITTERS
24" Yoder Slitting Line
60" Paxon Slitting Line
STRAIGHTENERS
No. 3 Medart 3 Roll, Capacity to 4½" Tubing
Kane & Roach Roll Straightener & Cutoff Capacities 7/16" to ⅞" Hex. Bars
SWAGING MACHINES
#4 Fenn, Capacity 2¼" Tubing, LATE
#6½A Fenn, Capacity 2¾" Tube 3⅜" Solid 10" Die Length Hydraulic Feed. LATE
WELDERS—SEAM
200 KVA Progressive Universal 220 Volt
400 KVA Federal Circular 440 Volt
500 KVA Federal Longitudinal 440 Volt
WIRE MACHINERY
#22 Vaughn 12-Die Continuous Wire Drawing Machine, Capacity 11 to 27 B&S Ga.
4 Block Vaughn Wire Drawing Machine 22" Diameter Blocks

• Manufacturing **A. T. HENRY & COMPANY, INC.** Equipment •

50 CHURCH ST., NEW YORK CITY 8
Telephone COrtlandt 7-3437

Confidential Certified Appraisals
Liquidations — Bona Fide Auction Sales Arranged

Consulting Engineering Service
Surplus Mfg. Equipment Inventories Purchased

2000# Chambersburg Pneumatic Forging Hammer Late Type, Serial 20CH392L7.
4000 lb. Chambersburg Double Frame Steam Forg. Hammer
2500 lb. Erie Single Leg Steam Forg. Hammer
No. 7 Ajax Forging Press, 700-ton capacity
3—2-ton Denison Auto. Hopper Feed & Index Table Hydr. Multipress
25 Transformer and Generating Arc Welders
2500 lb. Model E Chambersburg Steam Drop Hammer, New 1944
6' x 10 ga. Cincinnati Squaring Shear
¼" x 8' Pexto Gate Shear; 20" throat
4" National High Duty Upsetting & Forging Machine, air clutch, also one with regular clutch, also 1", 2", 3" air clutch
Williams White Bulldozers from 5-ton to 300-ton
Landis Landmaco and other Landis Threading Machines
Single & Double End Punches
No. 3 Motch & Merryweather Saw, with Saw Grinder
Conomatic, 4 Spin. Cap. 1½" Rd.

BOLT, NUT AND RIVET MACHINERY, COLD HEADERS, THREAD ROLLERS, THREADING MACHINES, TAPPERS, COLD BOLT TRIMMERS, SLOTTERS, HOT HEADERS AND TRIMMERS, COLD AND HOT PUNCH NUT MACHINES.

DONAHUE STEEL PRODUCTS CO.
1919 W. 74th Street, Chicago 36, Ill.

RE-NU-BILT
GUARANTEED
ELECTRIC POWER EQUIPMENT
A. C. MOTORS
3 phase—60 cycle

SLIP RING

Qu.	H.P.	Make	Type	Volts	Speed
2	1750	G.E.	M-579BS	4800	1800
1	1500	G.E.	MT	6600	1187
1	1100	F.M.	OVZK, B.B.	4800	1800
1	800	G.E.	MT	2300	293
1	750	G.E.	MT-573	2200	1190
1	700	A.C.		2300	500
1	500	Whse.	CW	550	350
1	400	Whse.	CW	440	514
1	350	Cr.Wh.	Size 71	208/416	1765
1	350	G.E.	1M-17A	440/2200	720
1	250	G.E.	MT-424Y	4000	257
1	250	Cr.Wh.	Size 290	2300	850
1	250	Al. Ch.		550	600
1	200	G.E.	IE13 B-M	220/440	1760
1	200	G.E.	MT-557Y	220/440	1760
1	200	Cr.Wh.	209B	440	505
1	200	G.E.	IM	440	435
3	200	G.E.	1-17AM	2200	435
1	200	G.E.	IM	2200	580
1	150 (unused)	Whse.	CW	2300	435
1	125	A.C.		440	865
1	125	Al. Ch.		440	720
1	100	G.E.	IM-10	2200	435
1	100	G.E.	IM	440	600
4	100	A.C.	ANY	440	695

SQUIRREL CAGE

1	800	G.E.	KT-573	2200	1180
1	650	G.E.	FT-559BY	440	3570
3	500	Whse.	CS-1216	2200	500
2	450	Whse.	CS-1420	2300/4150	354
1	400	G.E.	IK	2200	500
1	300	G.E.	KT-559A	2300	1775
1	200	G.E.	IK-17	440	580
2	200	G.E.	KT-557	440	1800
1	150/75	G.E.	IK	440	900/450
1	150	Whse.	CS8568	440	880
1	150	Whse.	CS	440	580

SYNCHRONOUS

Qu.	H.P.	Make	Types	Volts	RPM
1	7000	G.E.	ATI	2200/6600	600
1	4350	C.W.	3501SL	4000/6900/13800	514
1	2850	Whse.	.8p.f	2300/4600	514
1	2800	Whse.	.8p.f	2300	720
1	2000	Whse.		2300	120
2	1750	G.E.	ATI	2300	3600
1	735	G.E.	ATI	2200/12000	600
1	450	Whse.		2200	128.5
1	325	G.E.	ATI	440	1800
1	225	G.E.	ATI	440	1800
1	100	G.E.	TS-7556	220/440	900

BELYEA COMPANY, Inc.
47 Howell Street, Jersey City 6, N. J.

CHECK THIS LIST FOR HIGH GRADE TOOLS

MISCELLANEOUS
Welder, 100 KVA Taylor Winfield
Welder, 50 KW Sciaky Dynatrol automatic, press spot
Threader, Model 11B Rickert-Shafer nipple machine
Threader, 9/16" National precision threed roll
Threader, Type R Economy threader and pointer
Sloter, 36" Rockford hydraulic vertical, late MD
Shaper, 36" Rockford openside universal shaper-planer, mechanical
Roll, No. 1L Kane & Roach vertical bending
Roll, No. 1B Kane & Roach straightening
Planer, 30" x 30" x 8' Cincinnati, two rail, one side head
Lapper, No. 2 Cincinnati centerless, MD
Hone, No. 224-B Barnes hydraulic single spindle
Engraver, Model BL 2416 Pratt & Whitney Keller, 3 spindle
Compressor, 650 CFM Sullivan Class WJ-3 angle compound
Compressor, 390 CFM Ingersoll Rand type XRE, 2 stage
Cut-off, 6" capacity Campbell "Cutamatic" abrasive
Cut-off, No. 2A Modern automatic, late

SAWS
10½" x 10½" No. 3 Motch & Merryweather cold metal
10" x 10" Racine hydraulic shear cut
6" x 6" Peerless universal
6" x 6" No. 6 Marvel high speed

PRESSES
750 ton No. 3 National Maxi-press, all steel, forging, late
106 ton No. 78 Toledo S.C., overhanging, gap (two)
60 ton Henry & Wright high speed, dieing
50 ton Henry & Wright high speed, dieing (two)
95 ton No. 8 Bliss Consolidated OBI, MD
60 ton No. 600B Perkins, OBI
800 ton Model 2E48-800 Hamilton S.S., S.C., air clutch, late
113 ton No. 66 Bliss Consolidated S.S., tiered frame, DBG
106 ton No. 56 Toledo, S.S., S.C., tiered (three)
250 ton Williams & White 4 post hydraulic
150 ton HPM Hydro-Power Fastraverse, hydraulic
100 ton HPM Hydro-Power hydraulic
350 ton No. 18T Cleveland double action, toggle drawing, S.C.
260 ton No.796½-72 Toledo double crank, toggle drawing
120/180 ton No. 174-S Toledo double action, toggle drawing, S. C.
200 ton No. 7 x 72" Bliss double crank s.s. tiered
126 ton Model 60D66 Cleveland s.s. double crank, tiered
600 ton No. 664 Toledo knuckle joint coining

Write For Your List No. 206

MILES MACHINERY CO.
PHONE SAGINAW PL 2-3105
2041 E. GENESEE AVE. SAGINAW, MICH.

MG Set GE 250KW 250VDC 720RPM 375HP 220V Compressor 4000# Air 368'PD 150HP SYN MTR Motor 800 HP West CW 870RPM 2200V, Controls Diesel Generator 60KW 250 VDC Cummins/GE Guillotine Bar Shear H&J #0 1½" Round Bar Tube Bender 1¼" W&W Universal Hyd 15HP Reduction Gear 150HP Fawcus 11.7:1 H Dty

F. H. CRAWFORD & COMPANY, INC.
30 Church Street **New York 7, N. Y.**

BENNETT MACHINERY CO.

800 TON NILES WHEEL PRESSES
(2) Late Type 800 ton Wheel Presses, 96" between bars; max. dist. ram and resistance head 9'3" wgt. each 65,000 lbs.
(1) 32" Ohio Dreadnaught Shaper, M. D.

375 Allwood Rd., Clifton, New Jersey
Phone: PRescott 9-8996 N. Y. Phone: LOngacre 3-1222

Gemar *Associates*
CONSULTING
MATERIALS HANDLING
ENGINEERS
over 25 years experience
GREENWICH, CONNECTICUT

CALL Curry! FOR SURPLUS STEEL PLANT EQUIPMENT

AVAILABLE EQUIPMENT

1—110" 3-HI PLATE MILL, with Furnace, Front & Back Tables, Leveller, etc.
1—45" x 22'5" HOOD TYPE ANNEALING FURNACES (4 available)
1—60" SHEET GALVANIZING UNITS, complete (2 available)
1—2000 H.P. GEAR REDUCTION UNIT, Ratio 10 to 1, Output 25 RPM
1—5¼" DIA. x 30" 2-HI PLATE LEVELLER, 5-Roll, Cap. ½" x 24"
1—42" 4-HI SHEET LEVELLER, 17-Rolls, for 36" wide Sheets
1—4" Dia. x 54" 2-HI LEVELLER, 17 Rolls
1—2¾" DIA. x 18" 2-HI LEVELLER, 2-Feed Rolls, 5-Levelling Rolls
1—10" DIA. x 16" FACE 2-HI COLD MILL, 100 H.P., DC DRIVE & MOTOR
1—10" DIA. x 14" FACE, 2-HI COLD MILL, 75 H.P., AC DRIVE & MOTOR
1—12" DIA. x 12" FACE, 2-HI BRASS MILL, 75 H.P., AC DRIVE & MOTOR
Write for the Curry List of available steel plant equipment

1—12" DIA. x 16" FACE, 2-HI BRASS MILL, 125 H.P., AC DRIVE & MOTOR
1—16" DIA. x 24" FACE, 2-HI BRASS MILL, 150 H.P., AC DRIVE & MOTOR
1—8" DIA. x 12" FACE, 2-HI COLD MILL, 10 H.P., AC DRIVE & MOTOR
1—8" DIA. x 6" FACE, 2-HI COLD MILL, 15 H.P., AC DRIVE & MOTOR
1—22" & 12" x 40" 3-HI SHEET BREAKDOWN MILL, with Drive, Motor & Tables
1—3500 H.P., SLIP RING MOTOR, 3/60/11000 volts @ 514 RPM, with Controls

1—3500 H.P., SLIP RING MOTOR 3/60/6600 volts @ 240 RPM, with Controls
1—2000 H. P., SLIP RING MOTOR, 3/60/2300 volts @ 240 RPM, with Controls
1—PROPANE GAS PLANT, 60,000 GALLON STORAGE CAPACITY
1—12" x ⅝" NIAGARA SQUARING SHEAR
1—12' x 3/16" STAMCO SQUARING SHEAR
1—13' x 9/16" UNITED PLATE SHEAR
1—100" x ½" TOLEDO PLATE SHEAR
1—8' x ¼" THOMAS PLATE SHEAR
1—STREINE PACK SHEAR LINE
1—60" x 10 GA. CUT-UP SHEARING LINE
1—36" HALLDEN FLYING SHEAR LINE
1—BILLET SHEAR, Capacity four (4) 4" x 4" HOT BILLETS
1—7" x 7" COLD VERTICAL BAR SHEAR
1—4" x 4" COLD VERTICAL BAR SHEAR
1—4" DIA. CAPACITY ALLIGATOR SHEAR
1—5" SQUARE CAPACITY ALLIGATOR SHEAR
1—5" ROUND CAPACITY ALLIGATOR SHEAR
1—36" YODER GANG SLITTER FOR SHEETS
1—48" MESTA GANG SLITTER FOR SHEETS
1—36" PAXON SLITTING LINE
1—60" YODER SLITTING LINE
1—72" YODER GANG SLITTER FOR SHEETS
1—12' STAMCO CORRUGATING MACHINE

ALBERT Curry & CO. INC.
STEEL PLANT EQUIPMENT
941 OLIVER BUILDING · PITTSBURGH 22, PENNA.
Phone ATlantic 1-1370
Cable Address: CURMILL-PITTSBURGH

REBUILT — GUARANTEED ELECTRICAL EQUIPMENT

COMPLETE PACKAGE MILL DRIVE IN STOCK

(1)—800-HP., Whse. motor, 368 R.P.M., 710 VDC, sep. excited fields
(1)—720 850-KW Whse. M-G Set 600/710 VDC Diff. Comp. driven by a synchronous motor 900 R.P.M., 3000-2300-volt, 3 phase, 60 cycle
(1)—Starting panel for syn. motor
(1)—4 unit exciter set
(1)—Set of variable voltage control

IDEAL REEL DRIVES

(2)—600-HP Allis-Chalmers mill motors, 600 VDC, 300/600 R.P.M., with a 1200-KW, 600 VDC Westinghouse M-G Set, 1750-HP synchronous motor, 4160-2300 Volt, 3 phase, 60 cycle
(2)—275-HP Westinghouse mill type motors, 230-Volt, 425/850 R.P.M., with 2 ea 200-KW, 600-KW M-G Set, 230 Volt, and 900-HP synchronous motor, 2300 Volt, 3 phase, 60 cycle

SPECIAL

1150 KW double armature Whse. Generator, 600 VDC, 900 R.P.M. separate excited fields, with 2250 HP, syn. motor, 2300-2000 volt, 3 phase, 60 cycle

MOTOR GENERATOR SETS

Qu.	KW	Make	RPM	D.C. Volts	A.C. Volts
2	1500	Al Ch	514	250-500	13800-6900-4160
5	1500	G E	514	250	2500-4000
1	1450	Whse	900	600	2300-4000
2	1250	Al Ch	720	600	2300-4000
1	850	G E	720	250-350	2300
1	825	Whse	900	600	2300-4000
1	700	Cr Wh	720	600	2300-110
1	500	G E	900	250	2300
1	500	Whse	1200	125-250	2300
1	500	Al Ch	1200	250-300	2300
10	unit				
2	200	Whse	1200	125-250	2300-110
3	150	Rel	1200	125	2300-110
1	150	Whse	1200	125-250	2300-110
1	150	G E	1200	250	2300-2300
1	100	Whse	720	125-250	250
1	75	Whse	1200	125-250	2300

T. B. MAC CABE COMPANY
4302 Clarissa St., Philadelphia 40, Penna.
Cable Address: "Macsteel" Philadelphia, Pa.
Phone: Davenport 4-8300

H & STEEL SHEET PILING

1500 pcs. BETH. SP-6A—35', 40', 60' & 65'
900 pcs. CARNEGIE M-116—30', 40' & 50'
288 pcs. BETH. ZP-3?—48' & 62'
317 pcs. BETH. AP-3—20', 28' & 42'
400 pcs. BETH. BP-12—53 lb. 58' to 60'

DIESEL LOCOMOTIVES
7-25, 44 & 65 TON GEN. ELECTRIC

4—1000 CFM AIR COMPRESSORS
4 1000 CFM INGER-RAND TWIN 90-90C TYPE 40 AIR COOLED NEW 1953 USED 6 MONTHS EACH WITH 200 HP 3P 60C 440V DIRECT COUPLED MOTOR.

R. C. STANHOPE, INC.
60 E. 42nd St. New York 17, N. Y.

PLATE SHEAR
60" x 7/8"
LONG & ALLSTATTER MODEL C
Equipped with Holddown
Motor Drive
IMMEDIATE DELIVERY
LANG MACHINERY COMPANY, INC.
28th St. & A.V.R.R. Pittsburgh 22, Pa.
GRant 1-3594

FOR SALE
COMPLETE BAR & ROD ROLLING MILL IMMEDIATELY AVAILABLE
Suitable for Rolling Steel or Copper billets down to bar or rod sizes, including hotbed, shears, and rod coiler.
STILL SET-UP, REASONABLY PRICED FOR IMMEDIATE SALE
NATIONAL MACHINERY EXCHANGE
126 Mott St. New York 13, N. Y.
CAnal 6-2470

UNIVERSAL
MACHINERY & EQUIPMENT CO.

MELTING FURNACES
3 KW AJAX Spark Gap Converter
20 KW AJAX Melting Unit
50 KW INDUCTION FURNACE
333 KW AJAX, 1000 lb. Steel
250 lb. LECTROMELT Arc Melting Furnace
1½ Ton LECTROMELT Arc Melting Furnace
1500 lb. HEROULT Arc Melting Furnace

SPECIAL
4 Ton Hydraulic Top Charge SWINDELL—Like New

HEAT TREAT FURNACES
DESPATCH pit-type gas hardening furnace
200 KW TOCCO Induction Heater
1—Gas Fired, 5' 6" x 8' I.D. Pit
1—L&N, 75 KW, 25" x 48" Electric Pit

CLEANING EQUIPMENT
15" Cont. AMERICAN Tumblast, 4 tons per hour
36" Cont. AMERICAN Tumblast, 15 tons per hour
48 x 42 WHEELABRATOR w skip loader
48 x 48 WHEELABRATOR w skip loader
PANGBORN Shot Blast Machine, 5 Wheel Type

1630 N. NINTH ST., READING, PA.
Phone: Reading 3-5103

COMPRESSORS
1902-1957
World's Best Rebuilts

66 CFM	125 psi	5 x 9 Ing.	ESI St. Booster
138 CFM	100 psi	7 x 7 Ing.	ESI
184 CFM	135 psi	8 x 9 Ing.	Chic-T
234 CFM	100 psi	9 x 9 Ing.	ESI
268 CFM	500 psi	10-4¾ x 10 Ing.	XOB
368 CFM	100 psi	12 x 10 Ing.	1R-CP-Penn
420 CFM	40 psi	12 x 9 Ing.	ES-Oil-Less
465 CFM	100 psi	12 x 11 Ing.	Penn 3AT Gardner X
528 CFM	100 psi	14 x 12 Ing.	1R-CP-Penn
585 CFM	100 psi	15-9¾ x 12 Ing.	1R-XRE 3-60-4160
669 CFM	50 psi	15 x 11 Ing.	Worth. HB or HS
676 CFM	100 psi	15-9¾ x 12 Ing.	XRB
877 CFM	100 psi	17-10½ x 14 Ing.	XRB
1050 CFM	100 psi	18-11 x 12 Ing.	Penn DE2 3-60-2300
1385 CFM	100 psi	13-8 x 7 Ing.	Joy WN114-3-60-440
1721 CFM	100 psi	23-14 x 16 Ing.	PRE2 3-60-2300
2900 CFM	100 psi	29-18 x 21 Ing.	PRE2 3-60-2300
3460 CFM	100 psi	23-13 x 18 Ing.	CP OCTDE 3-60-2300
5748 CFM	50 psi	29-29 x 21 Ing.	PRE1 3-60-2300

PORTABLES—60-600 CFM Rotary or reciprocating

AMERICAN AIR COMPRESSOR CORP.
DELL & 48TH STREET
NORTH BERGEN, N. J.
Telephone UNion 5-4848

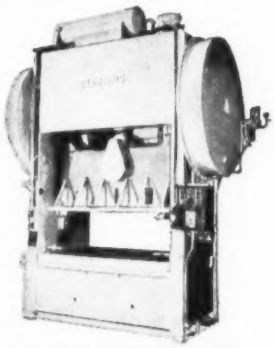
BENKART STEEL & SUPPLY COMPANY
CORAOPOLIS, PENNSYLVANIA
AMherst 4-1250
Dealers in new and used OET Cranes and Structural Steel Buildings.
Send us your inquiries.

CONVEYOR FURNACES
2—Holcroft Electric Processing Furnaces, 24" Roller Conveyor type, 76' long, 2000°F with 25 KVA Transformers, Reactors, Control Panels, etc. Excellent Condition. Built 1947. Attractively Priced.
BRILL EQUIPMENT CO.
2401 Third Ave., New York 51, N. Y.
Tel.: CYpress 2-5703

GAUGE & RUN OUT TABLE
Complete with all controls
Will cut 6" min. 72" max.
Great Lakes Wholesale Supply Co.
5100 Stanton, Detroit 8, Mich.

3" x 3" x ⅜" Garlock Vertical Angle Bending Roll, M.D.
No. ½, No. 1½ Buffalo Forge Univ. Ironworkers, Coper, Notcher, M.D.
FALK MACHINERY COMPANY
16 Ward St. Baker 5887 Rochester 5, N. Y.

WORLD'S LARGEST STOCK
STAMPING PRESSES
BLISS • CLEARING • CLEVELAND
FERRACUTE • HAMILTON • L & J
NIAGARA • TOLEDO • V & O



SQUARING SHEARS • PRESS BRAKES
REBUILT *and* GUARANTEED

JOSEPH HYMAN & SONS
TIOGA, LIVINGSTON & ALMOND STS.
PHILADELPHIA 34, PA. Phone GArfield 3-8700

GOOD *Quality* TOOLS
10" Model EE and 12" Model C MONARCH Toolmaker's Lathes
Nos. 3 and 5 JONES & LAMSON Ram Type Universal Turret Lathes
16" x 16" x 48" THOMPSON Type C Hydraulic Surface Grinder
400 ton BLISS Knuckle Joint Presses, new 1949
24" x 24" x 6' GRAY D. H. Planers, 2 heads, M.D. Late

WIGGLESWORTH INDUSTRIAL CORPORATION
62 Border Street E. Boston, Mass.

W & W No. 2 Hyd. Tube Bender.
Hartford 96" Circular Bases with indexing units.
Ransohoff Washers, several various types.

D. E. DONY MACHINERY CO.
4357 St. Paul Blvd. Rochester 17 N. Y.

LIFTING MAGNETS
A complete magnet service. Magnets, new & rebuilt, generators, controllers, reels, etc.
Magnet specialists since 1910

Goodman Electric Machinery Co.
1060 Broad St. Newark 2, N. J.

LEWIS SHEET MILL
3 High 40" Face, 22" Dia. 18½" Neck, Middle 12" Dia., 8" Neck with 300 HP Herring Bone Reducing Drive with 300 HP, 2300 V, 3 Ph, 60 Cy WH Motor. Complete with Controls and with Automatic Roller and Catcher. Very Attractive Price.

L. B. FOSTER CO.
Industrial Equipment Division
P. O. Box 1647, PITTSBURGH 30, PA.

---

eastern Rebuilt Machine Tools
THE SIGN OF QUALITY—THE MARK OF DEPENDABILITY

PLAIN CYLINDRICAL GRINDERS
6 x 18" Cincinnati Model EA, m.d.
6 x 18" Cincinnati Model ER, Plain Hydraulic, m.d., Filmatic Spindle
6 x 18" Landis Type C Hydraulic, m.d., late
6 x 18" Norton Plain Grinder, m.d.
10 x 18" Cincinnati Plain Hydraulic, model ER, m.d., Filmatic Spindle, 1943
10 x 18" Cincinnati Model EA, m.d.
10 x 18" Norton Type C, m.d., latest
10 x 36" Cincinnati Hydraulic, m.d.
10 x 36" Norton Type C, m.d.
10 x 72" Landis, m.d.
12 x 36" Landis Plain Self-Contained, m.d.
12 x 96" Landis Self-Contained, m.d.
14 x 52" Norton, motorized
16 x 72" centers Type C Norton Semi-Auto., Hydraulic
16 x 72" Landis Plain Self-Contained, single m.d.
16 x 96" Cincinnati Plain Cylindrical, m.d.
18 x 72" Norton Type C, mechanical, m.d.
20 x 120" Landis Plain Self-Contained, m.d.
25 x 72" Landis Type C, m.d.

INTERNAL GRINDERS
Type IG 103 Grenby, m.d
No. 5 Bryant, m.d., latest
Model 5Y Bryant, m.d.
No. 16—16" Bryant m.d., hydraulic Hole Grinder
No. 16CR16 Bryant, m.d., latest
No. 16—22" Bryant, m.d., latest
No. 16—38" Bryant, m.d., latest
No. 16-A—28" Bryant, m.d.
No. 24—36 Bryant Hole & Face Type, m.d., late
No. 24P—26" Bryant, m.d.
No. 24—21" Bryant, m.d.
No. 24-L—36 Bryant, m.d., late
No. 24-LW—36 Bryant, m.d., late
No. 44 Heald Facing Type Borematic, m.d.
No. 649—16" Van Norman Automatic Oscillating Radius, m.d., latest
No. 70A Heald, m.d., latest
No. 72A Heald Sizematic, "Duplex," m.d.
No. 72A Heald Gagematic, m.d.
No. 72A3 Heald Full Universal, m.d.
No. 72A3 Heald Gagematic, m.d.
No. 72A3 Heald Sizematic, m.d.
No. 72A3 Heald Plain, m.d.
No. 72A5 Heald Sizematic, m.d.
No. 72A5 Heald Plain, m.d.

We carry an average of 2,000 machines in our 11 acre plant at Cincinnati. Visitors welcome at all times.

THE EASTERN MACHINERY COMPANY
1002 Tennessee Avenue, Cincinnati 29, Ohio
MElrose 1241 "TWX" CI 174 CABLE ADDRESS—EMCO

TOTAL OF 17,500-KW IN M.G. SETS
5—3500-KW, 3 Unit, Allis-Chalmers, Motor Generator Sets. Each consisting of:
2—1750-KW, 250/350 Volts parallel, 500/700 Volt series, 514 RPM, 5000 Amp., type HCC, rated continuous at 40 Deg. C. Allis-Chalmers DC Generators with Class B Insulation, separately excited, direct connected in the center to:
1—5000-H, 3730-KW, 13800 Volts (6900 volts), 3 Phase, 60 cycle, 514 RPM, 162 Amps., Allis-Chalmers, Synchronous Motor with Class B Insulation, rated continuous at 40 Deg. C. Rise.
Each set equipped with a 40-KW exciter for synchronous motor fields, and a 10-KW exciter for generator fields, both 250-VDC at 514 RPM.
All mounted on a structural steel base approximately 27' long x 11' wide.
These Units are of the very latest type and design—condition excellent—were used only a short time—AC and DC Switchgear available. For any additional information and price, please contact one of the following dealers closest to you:

T. B. MacCabe Company
4300 Clarissa Street, Philadelphia 40, Pa.
Moorhead Electrical Machinery Co.
120 Noblestown Road, Oakdale (Pittsburgh District) Pennsylvania
Brazos Engineering Co., Inc.
P. O. Box 9114, Houston, Texas
Duquesne Electric & Mfg. Co.
6428 Hamilton Avenue, Pittsburgh 6, Pa.

MACHINES FOR YOUR YARD
Austin-Western ½ yd. shovel
Lorain L-11 magnet crane
24" x 48" magnetic pulley
Lessman ¾ yd. loader
B-G 24" hopper car unloader
American car puller, DC elec. power

TRACTOR & EQUIPMENT CO.
10006 Southwest Highway, Oak Lawn, Ill.

BEST BUY OF THE WEEK!
Bliss-Toledo 1000 Ton Model 666 Knuckle joint press air-clutch—late model

STROM MACHINERY CORP.
1826 Sumner St., Hammond, Ind.

PUMPS
AT SACRIFICE PRICES!
1—INGERSOLL RAND CAMERON Pump & Motor, Size 4HMT-4, 100 HP G. E. Motor, 440 volts. Pump: 450 GPM, 539' Head, Hydro Test 1200. 1750 RPM, G. E. Automatic Compensator.
1—INGERSOLL RAND CAMERON Pump & Motor, Size 4RT-4, 200 HP, 3550 RPM, 440 volts. Pump: 450 GPM, 3560 RPM, 1100' Head, 1200 Hydro Test, Year Mfg. 1952. 200 HP Automatic Compensator.
1—WORTHINGTON Pump, Style 5KF365 DA7, Serial No. 1038587 Size 1¾ x 4, 30 GPM 1200 lb. capacity, 25 HP G. E. Motor, 1760 RPM, TEPC 220/440, 200 RPM.
1—ALLIS CHALMERS Centrifugal Pump, 4 stage, 4" Inlet, 3" outlet, 500 lb. pressure, 150 GPM, 75 Motor, HP Crocker Wheeler 3/60/220, 3600 RPM, 75 HP Cross-The-Line Starter.
WRITE, WIRE, CALL COLLECT
SEE The World's Largest Foundry Equipment Dealer First!

AAA MACHINERY & EQUIPMENT CO.
15539 Saranac Rd., CLEVELAND 10, O.
Phone: Liberty 1-6545

♯300 Hanchett Vertical Surface Grinder Serial ♯300-17 capacity 13" x 72".

Cleveland Punch and Shear Model ER-34" throat.

No. 47 Heald Single End Borematic ♯Serial 4646.

Late Type 4" Bar Sellers Heavy Duty Table Type Horizontal Boring Mill Serial No. 1318.

25" x 96" Landis "C," 1943 Cylindrical Grinder Serial ♯27527.

Hazard Brownell Machine Tools, Inc.
350 Waterman St. Providence 6, R. I.
Dexter 1-8880

RAILROAD EQUIPMENT For Sale

REBUILT—REPAIRED OR "AS IS"

Immediate Delivery on:
Hopper • Tank • Flat • Gondola
Caboose and Special Designed Cars
Locomotives and Loco. Cranes

All work executed on cars in our modern, well-equipped plant

40 YEARS OF EXPERIENCE
Your Assurance of Satisfaction

RAIL & INDUSTRIAL EQUIPMENT CO., INC.
30 Church Street, New York 7, N. Y.
RR Yard & Shops, Landisville, Pa.

Export Only **For Sale** *Export Only*

HOT STRIP MILL

Complete with Reversing Slabbing Mill
5,000 Horse Power Motor and Drive
3 Finishing Stands with Roll Size 17" x 48"
1 Finishing Stand with Roll Size 17" x 43"
May Be Seen In Operation
Must Be Sold Outside United States. Principals Only, please.

Write - - Wire

ADDRESS BOX G-575, Care The Iron Age, Chestnut & 56th Sts., Philadelphia 39

Railroad Freight Cars — Gondola, Box and Flat Cars. Tank Car Tanks — 8000 gallon. Steam Locomotive Crane. Rails.

Consolidated Ry. Equipment Co.
6702 So. Cicero Ave., Chicago 38, Ill.

Keep 'em rolling . . . not rusting

FOR SALE

New—Used—Reconditioned railroad freight cars • car parts • locomotives • tank cars • steel storage tanks

MARSHALL RAILWAY EQUIPMENT Corporation
328 Connell Building, Scranton 3, Pennsylvania
Diamond 3-1117 Cable MARAILQUIP

RAILS—All Sections
NEW RELAYING—All Accessories
TRACK EQUIPMENT, FROGS—CROSSINGS—TIE PLATES, CONTRACTORS AND MINE & MINING MACHINERY CARS

M. K. Frank Grand Central Palace, New York; 401 Park Bldg., Pittsburgh, Pa.; 105 Lake Street, Reno, Nevada

---

FOR SALE

25 ton Ohio Diesel Locomotive Crane. New 1947. Caterpillar D-13000 Engine. Excellent Condition.
35 ton Ind. Brownhoist Diesel Locomotive Crane. New 1943. Caterpillar D-13000 Engine. 15 KW Magnet Generator. Excellent.
50 ton Whitcomb Diesel Electric Locomotive 300 HP Cummins Engines. New 1943. Reconditioned.
65 ton Atlas Diesel Electric Locomotive 400 HP Cummins Engine. New 1942. Reconditioned.
115 ton Alco Diesel Electric Locomotive 1000 HP. New 1941.

Mississippi Valley Equipment Co.
501 Locust St. St. Louis 1, Mo.

FOR SALE

FREIGHT CAR REPAIR PARTS
RELAYING RAILS & ACCESSORIES
STEEL STORAGE TANKS
FRT. CARS & LOCOMOTIVES
CONTRACTOR EQUIP. & MACHINERY

THE PURDY CO.

8754 S. DOBSON AVE.
CHICAGO 19, ILL. — BA 1-2100
ALSO ST. LOUIS, MO., SAN FRAN. AND LONG BEACH, CALIF.

Save on Your INDUSTRIAL TRACK

FOSTER *QUALITY* — FULLY GUARANTEED

RELAYING RAILS

Handle more cars better—cost less to install and maintain. Foster stocks all Rail Sections 12# thru 175#, Switch Material and Track Accessories.

SEND FOR CATALOGS

RAILS - TRACK EQUIPMENT - PIPE - PILING

L. B. FOSTER CO.

PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4
ATLANTA 8 • HOUSTON 2 • LOS ANGELES 5

MORGAN GANTRY CRANE

15-ton capacity, 48'0" span center to center of ground rails, 19'2" overhang each end, 86'4" bridge length, 72'0" full hook travel, 30' lift, wired for 220/440-V., 3 phase, 60 cycle, with G.E. motors and control, enclosed gears throughout. Hoist and bridge motors 50-HP each, trolley 7½-HP, Hoist 38 F.P.M., bridge 200 F.P.M., complete and in A-1 condition throughout. All conductor materials included. Still erected, available for immediate inspection. SAVE $35,000.00 over a NEW CRANE and get IMMEDIATE SHIPMENT.

M.E.T. Equipment and Construction Co.
4310 Clarissa Street
Philadelphia 40, Pennsylvania
Phone DA. 4-8300

Press 250 ton Bliss #S1 S.S. 7½" stroke equipped with air clutch, air brakes, automatic Bliss roll feed, push-button controls.

This press like new, may be seen in operation.

IMMEDIATE DELIVERY

SUPERIOR

Metal Products Mfg. Co.
AUBURN HEIGHTS, MICHIGAN

OFFERING

BRIDGE CRANES

ARNOLD HUGHES COMPANY
2765 Penobscot Bldg. Detroit, Mich.
WOodward 1-1894

FOR SALE—FURNACES

Immediate delivery on all types, makes & sizes of Industrial Heat Treating Furnaces.

PAPESCH & KOLSTAD, Inc.
16706 Capital Ave., P.O. Box 3726
Oak Park (Detroit 37), Michigan

FOR SALE

1—5000 gal. underground oil tank, 7 ft. by 17'11".
Sharpsville with 4-4 in. opening & manhole. Never used.
¼ in. Shell & Head Weight 5400 lbs.

J. E. OVIATT, 601 West Bridge St., Plainwell, Mich.

FOR SALE

40 TON DIESEL LOCOMOTIVE CRANE Orton Serial #43016—built 1942, with 75 ft. boom. Air operated travelling brakes and clutch controls. Powered by Caterpillar D-17000 engine. Can be returned to U.S. free of duty.

ANDREW MERRILEES LIMITED
189 Old Weston Road, Toronto 9, Ontario
Telephone: ROger 9-1356

OVERHEAD CRANES & HOISTS

120-ton Morgan 65' span, 2—60-ton trolleys, 230 VDC.
15-ton Whiting 50' span, 440 3 60 cy.
10-ton Shepard, 39'9" span, 220 3 60 cy, push button floor controlled.
10-ton Morgan, 40" span, 230 VDC.
100 other cranes various spans and current

JAMES P. ARMEL, Crane Specialist
710 House Bldg. Pittsburgh 2, Pa.
Tele. GR 1-4449

CRANES
BOUGHT & SOLD
ENGINEERED TO YOUR REQUIREMENTS
Ornitz Equipment Corp.
Industrial Engineering Service
220 3rd Ave. Brooklyn 17, N. Y.
TRiangle 5-2553

FOR SALE

Rolling Mill LIFT TABLE with 21" lift approximately 2000 pound capacity. Powered by 30 H.P. Vickers Hydraulic Unit.

NEW HAVEN COPPER CO.
SEYMOUR, CONN.

CONTRACT MANUFACTURING

MEEHANITE® and NI-HARD CASTINGS
PATTERNS
MACHINE and PLATE SHOP WORK
CUSTOM-BUILT MACHINERY

HARDINGE MANUFACTURING CO.
240 ARCH ST., YORK, PA.

OLSON
SCREW MACHINE PRODUCTS

Made to your specifications and tolerances. From smallest up to 2⅝" diameter in steel, brass and aluminum.

OLSON MANUFACTURING CO.
101 Prescott St., Worcester, Mass.

THE FORMULA:

Multi-operation presses
plus
Yankee skilled workmen
over
Eighty years manufacturing
know-how equals
Low cost metal stampings
And precision assemblies
To meet your needs

The GREIST MANUFACTURING CO.
646 Blake St., New Haven 15, Conn.

Nepsco
NEW ENGLAND PRESSED STEEL COMPANY
Contract Manufacturer since 1914
METAL STAMPINGS
SPECIALTIES — APPLIANCES
For Industrial and Domestic Users
P. O. BOX 29
NATICK MASSACHUSETTS

GEM INSULATING FIREBRICK

★

THE GEM CLAY FORMING CO.
SEBRING, OHIO

Let us quote on STAMPINGS and ASSEMBLIES from drawing or sample

Drilling . . . Blanking . . . Riveting . . . Forming . . . Tapping . . . Welding . . . Toolmaking of course

COMPLETE DESIGN AND DEVELOPMENT FACILITIES

HUEBEL MFG. CO., INC.
763 Lexington Ave. Kenilworth, N. J.

MEEHANITE® METAL CASTINGS
ROUGH OR MACHINED
ONE TO 60,000 POUNDS
FOR
STRENGTH — ABRASION
CORROSION OR HEAT
ROSEDALE FOUNDRY & MACHINE CO.
1735 PREBLE AVE., PITTSBURGH 33, PA.

DROP FORGINGS

Special Forgings-High Quality, Fast Delivery for prompt attention phone or send prints to John Bello.

CARCO INDUSTRIES, INC.
7341 Tulip Street, Phila. 35, Pa.
DEvonshire 2-1200

Tool and Die Work
Tools-Dies-Jigs-Fixtures
Send your design
or print for an estimate
The Pekin Corporation
301 Koch Street Pekin, Illinois

CONTRACT MANUFACTURING

STANDARDIZE WITH
STANDARD
MADE TO YOUR SPECIFICATION
STEEL TUBING
CARBON · ALLOY AND STAINLESS
SEAMLESS OR WELDED
PRESSURE AND MECHANICAL
MILL OR WAREHOUSE QUANTITIES
STANDARD TUBE SALES CORP.
75-01 WOODHAVEN BLVD. · BROOKLYN 27, N. Y.

PRESS FORGINGS
MERRILL BROS.
5626 ARNOLD AVENUE
MASPETH, QUEENSBORO, N. Y.

DROP FORGINGS
To Your Specifications
Prompt Quotations
BALDT ANCHOR CHAIN & FORGE DIVISION
P. O. Box 350—Chester, Pennsylvania

Special Washers
We carry in stock Silicon killed steel specially suited for case-hardening. Stock dies for producing washers from .0015 to ½" thick.
Thomas Smith Company
294 Grove St., Worcester, Mass.

10 to 12 foot lengths
Any diameter up to 1¼ inch
All thread forms
All metals
H&G threaded rods
For studs, hangers, worms, translating screws, etc.
Eastern Machine Screw Corp., New Haven, Conn

SPECIAL MACHINERY
DIAMITE *Abrasive Resistant* Castings
NI-RESIST *Heat & Corrosion Resistant* Castings
P M G BRONZE *High Strength Acid Resistant* Castings
Fully Equipped—Pattern Foundry & Machine Shop Facilities—Castings to 15 tons.
Weatherly Foundry & Mfg. Co., Weatherly, Pa

DROP FORGINGS
Special Forgings of Every Description.
We solicit your prints or model for quotation.
Wilcox Forging Corporation
Mechanicsburg Penna.

SHOP
Through the Contract Manufacturing Section for the Plant with the Facilities to do your Work

EQUIPMENT AND MATERIALS WANTED

WEISS STEEL CO. INC.
600 WEST JACKSON BLVD.
CHICAGO 6, ILLINOIS
Buyers of Surplus Steel Inventories
38 Years of Steel Service

WANTED
SURPLUS STEEL
WALLACK BROTHERS
7400 S. Damen Ave. Chicago 36, Illinois

WANTED
BRIDGE CRANES
ARNOLD HUGHES COMPANY
2765 PENOBSCOT BLDG. DETROIT, MICH.
WOodward 1-1894

WANTED
NEW **SURPLUS STEEL** USED
Structurals, Plate, Pipe and Tubing
Consumers Steel & Supply Co.
P. O. Box 270, RACINE, WISCONSIN

WANTED
Used, Universal Cylindrical Grinder. Good condition 18" x 72"
Advise all particulars by mail to—
E. E. WILMOTH
New York Shipbuilding Corp.
Camden, N. J.

Try the
WANTED SECTION
for "Hard-to-Find"
Materials or Equipment.

EMPLOYMENT EXCHANGE

HELP WANTED

INDUSTRIAL ENGINEERS

Our $194 million expansion program which will soon double our steel-making capacity, has created opportunities in industrial engineering for young men trained or experienced in wage incentive programing, methods engineering, and statistical quality control.

2 to 5 years experience desired. Professional status assured. Openings at our Fontana plant in Southern California.

Send complete resume to Employment Manager

KAISER STEEL CORP.
P. O. Box 217
Fontana, Calif.

EXECUTIVE
Steel Sales

Long established producer in Western Pennsylvania is expanding specialty steel operations.
Seeking top executive to head up steel sales department.
Applicant should have thorough knowledge of alloy and stainless steels.
This position offers real challenge and opportunity. Top Salary and pension plan.
Send resume immediately.

ADDRESS BOX G-582
Care *The Iron Age*, Chestnut & 56th Sts., Phila. 39

TOOL ROOM SUPERVISOR: Position in Wilmington, Delaware plant for man experienced in all phases of tool and die making. Some designing experience helpful. Supervisory experience desirable. Send complete resume to: Manager of Industrial Relations, National Vulcanized Fibre Co., Wilmington 99, Del.

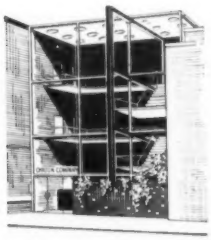
SITUATION WANTED

FORGE SHOP SUPERINTENDENT—GENERAL FOREMAN. 25 years' practical and supervision experience, excelling in scheduling, tooling, tool design, heat treating and maintaining forging equipment. Highest integrity. Address Box G-584, Care *The Iron Age*, Chestnut & 56th Sts., Philadelphia 39.

Do you have . . .
A JOB FOR THE RIGHT MAN?
Are you
THE RIGHT MAN FOR THE JOB?
Employers and men qualified for positions in the metalworking industry get together in the
EMPLOYMENT EXCHANGE
of
THE IRON AGE

Thirst

The successful man has an unquenchable thirst for new ideas, for up-to-date methods, for every product or development that can help him in his work. No wonder, then, he turns instinctively to leading business publications in his field, for there, on both the editorial and advertising pages, he finds the news reported with skill and authority. No wonder, then, he is so receptive to both editorial and advertising copy.



Chilton
COMPANY

Chestnut and 56th Streets • Philadelphia 39, Pennsylvania

CHILTON PUBLICATIONS: Department Store Economist • The Iron Age • Hardware Age • Spectator • Hardware World Jewelers' Circular–Keystone • Automotive Industries • Gas • Distribution Age • Optical Journal and Review of Optometry Motor Age • Boot and Shoe Recorder • Commercial Car Journal • Butane-Propane News • Electronic Industries • Book Division

MUNDT

PERFORATED METALS

The few perforations illustrated are indicative of the wide variety of our line—we can *perforate almost any size perforation in any kind of metal or material required.* Send us your specifications.

Sixty-seven years of manufacturing perforated metals for every conceivable purpose assure satisfaction.

Write for New Catalog of Patterns

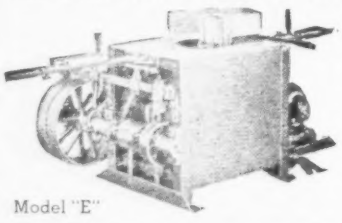
TIN, STEEL, COPPER, ALUMINUM, BRONZE
BRASS, ZINC, ANY METAL, ANY PURPOSE

CHARLES MUNDT & SONS
80 FAIRMOUNT AVE. JERSEY CITY, N. J.

KARDONG STIRRUP BENDER

For Concrete Reinforcing Bars

This bender is the result of our 30 years' experience in the manufacture of reinforcing bar benders. One man can easily bend 300 four bend stirrups an hour. This bender is also a very practical bender for light slab bars and miscellaneous bending. Write for catalog of our complete line of reinforcing bar benders.



Model "E"

KARDONG BROTHERS, INC.
MINNEAPOLIS 13, MINN.

GOSS and DE LEEUW

MULTIPLE SPINDLE
CHUCKING MACHINES
Four, Five, Six, Eight Spindles • Work and Tool Rotating Type
GOSS & DE LEEUW MACHINE CO., KENSINGTON, CONN.

"DAVIS" KEYSEATER

Low in Cost. Durable. Easy to operate.
Table adjustable for straight or taper keyways.
Three sizes. Keyways 1/16" up to 1".

DAVIS KEYSEATER CO.
400 Exchange St., Rochester 8, N. Y.

ADVERTISERS

An asterisk beside the name of advertiser indicates that a booklet, or other information, is offered in the advertisement. Write to the manufacturer for your copies today.

A

AAA Machinery & Equipment Co. 191
Air Reduction Sales Co. 151
Ajax Electric Co. 4
Ajax Electrothermic Corp. 4
Ajax Engineering Corp. 4
Alan Wood Steel Co. Between Pages 166 & 167
Allegheny Ludlum Steel Corp. 30
Allis-Chalmers Mfg. Co. 14 & 15
*Allis-Chalmers Mfg. Co., Buda Division 99
*Aluminum Co. of America 163
American Air Compressor Corp. 190
*American Chemical Paint Co. 70
American Gas Association 56
*American Monorail Co., The 22
American Screw Co. 60
Armco Steel Corp. 6
Armel, James P. 193
*Armstrong Bros. Tool Co. 165

B

*Babcock & Wilcox Co., The Refractories Division 37
Baldt Anchor, Chain & Forge Div. 194
Baldwin-Lima-Hamilton Corp. Standard Steel Works Div. 145
Baltimore & Ohio Railroad 84
*Barber-Colman Company 50 & 51
Belyea Co., Inc. 189
Bennett Machinery Co. 189
Berkart Steel & Supply Co. 190
Bertsch & Company 165
*Bethlehem Steel Co. 1 & 198
*Black & Decker Mfg. Co., The 157
*Blanchard Machine Co., The 54
Blaw-Knox Co. Foundry & Mill Machinery Division Between Pages 52 & 53
Bliss, E. W., Co., Press Division 83
*Boston Gear Works 36
*Brainard Steel Div. Sharon Steel Corp. 18 & 1
Brill Equipment Co. 190
Brownell, Hazard, Machine Tools, Inc. 191
Browning, Victor R., & Co., Inc. 165

C

*Cambridge Wire Cloth Co., The 152
Carco Industries, Inc. 193
Carpenter Steel Co., The 141
Chase Brass & Copper Co., Inc. 127
*Chicago & Eastern Illinois Railroad 107
*Chicago Rawhide Manufacturing Co. 110
*Chisholm-Moore Hoist Div. 138
Cincinnati Gear Company, The 136
*Clearing Machine Corp. Div. U. S. Industries, Inc. 132
Cleveland Crane & Engineering Co. 49
Cleveland Punch & Shear Works Co., The 57
*Cleveland Tramrail Division, The Colorado Fuel & Iron Corp., The Wickwire Spencer Steel Div. 164
Columbia-Southern Chemical Corp. 20 & 21
Columbia Tool Steel Co. Between Pages 48 & 49
*Consolidated Electrodynamics Corporation 143
Consolidated Railway Equipment Co. 192
Consumers Steel & Supply Company 194
*Continental Screw Co. 12
Continental Steel Corp. 137
*Copperweld Steel Co., Steel Div. Inside Front Cover
Crawford, F. H. & Co., Inc. 189
Crucible Steel Co. of America 53
Curry Albert & Co., Inc. 190
Curtiss-Wright Corporation Metals Processing Division 66
Cutler-Hammer Inc. Back Cover

D

*Damacus Tube Co. 169
Davis Keyseater Co. 196
Detroit Steel Corp. 159
Donahue Steel Products Co., Inc. 189
Dony, D. E. Machinery Co. 191

E

Eastern Machine Screw Corp., The 194
Eastern Machinery Co., The 191
Easton Car & Construction Co. 129
Electric Controller & Mfg. Co., The Division of Square D Company 92
*Electro-Alloys Division American Brake Shoe Co. 46
Electro Metallurgical Co., Div. of Union Carbide Corp. 100
Erie Forge & Steel Corporation 90
*Euclid Crane & Hoist Co., The 187

F

Falk Machinery Co. 190
Federal Machine & Welder Co. 68
Fischer Special Mfg. Co. 130
Foster, L. B. Company 191 & 192
Frank, M. K. 192

G

Gardner Machine Co. 31
Gem Clay Forming Co., The 193
Gemar Associates 189
Goodman Electric Machine Co. 191
Goodyear Tire & Rubber Co. Industrial Products Div. 10
Goss & DeLeeuw Machine Co. 196
*Great Lakes Steel Corp. 34 & 35
Great Lakes Wholesale Supply Co. 190
*Greenlee Bros. & Co. 28
Greist Manufacturing Co., The 193

H

Hanna Furnace Corp., The 81
Hardinge Mfg. Co. 193
Harper Electric Furnace Corp. 153
Harrison Sheet Steel Co. 165
*Haws Drinking Faucet Co. 144
Henry, A. T. & Company, Inc. 189
Hewitt-Robins 142
*Hoover Ball & Bearing Co. Between Pages 68 & 69
Horspool & Romine Manufacturing Co. Inc. 165
Houghton, E. F. & Co. 103
Huebel Mfg. Co., Inc. 193
Hughes, Arnold Co. 192 & 194
*Hyatt Bearings Div. General Motors Corp. 106
Hydraulic Press Mfg. Co., The, A Div. of Koehring Co. 38 & 39
Hyman, Joseph & Sons 191

I

*Inductotherm Corp. 102
Inland Steel Co. 155
Innocenti Inc. 40 & 41
*International Nickel Co., Inc., The 166
Iron & Steel Products, Inc. 188

J

Jessop Steel Company 61
Jones & Laughlin Steel Corporation 131

K

Kaiser Steel Corp. 194
Kaplan, M. S. Company 175
*Kardong Brothers, Inc. 196
Kaydon Engineering Corp., The 135
*Kidde, Walter & Co., Inc. 13

IN THIS ISSUE

L

*L & J Press Corp. 150
*Lamson & Sessions Co., The 94
*Landis Machine Co., Inc. 58
Lang Machinery Co., Inc. 190
Lansing Stamping Co. 128
*Linde Co., Div. of Union Carbide Corp. 59, 185
Link-Belt Co. 55
Loftus Engineering Corp. 160
Lumnite Bureau, Universal Atlas Cement Co. Between Pages 16 & 17
Luria Bros. & Co., Inc. 173

M

M. E. T. Equipment & Construction Co. 192
MacCabe, T. B. Co. ..... 190 & 191
Mackintosh-Hemphill Division of E. W. Bliss Co. 43
*Magnethermic Corp. Between Pages 48 & 49
*Mahon, R. C. Co., The 29
*Mallory-Sharon Titanium Corp. 42
*Manning, Maxwell & Moore, Inc. 8
Marshall Railway Equip. Corp. 192
Merrilees, Andrew Limited 193
Merrill Brothers 194
Metallurgical Products Department of General Electric Company ..... 26 & 27
Miles Machinery Co. 189
*Miller Electric Mfg. Co., Inc. 140
Mississippi Valley Equipment Co. 192
Morgan Construction Co. 5
*Mundt, Chas. & Sons 196

N

National Machinery Exchange 190
National Steel Corp. ..... 34 & 35, 81
National Vulcanized Fibre Co. 194
New Britain Machine Co., The Lucas Machine Div. ..... 62 & 63
New England Pressed Steel Co. 193
New Haven Copper Co., The 193
New York Shipbuilding Corp. 194
*Niagara Blower Co. 163
*Niagara Machine & Tool Works 45
*Norton Co., Machine Division ..... 24 & 25

O

O'Neil-Irwin Mfg. Co. 9
*Ohio Crankshaft Co., The 67
*Olsen, Tinius Testing Machine Co. 147
Olson Manufacturing Co. 193
Ornitz Equipment Corp. 193
Oviatt, J. E. 192

P

Papesch & Kolstad, Inc. 192
Pekin Corp., The 193
Pittsburgh Steel Co. ..... 108 & 109
Portage Machine Co., The 17
*Pratt & Whitney Co. Incorporated ..... 104 & 105
Purdy Company, The 192

R

R-S Furnace Co., Inc. 11
Rail & Industrial Equip. Co., Inc. 192
*Republic Steel Corp. ..... 64 & 65
*Rhode Island Tool Co. 197
Roebling's, John A. Sons Corp. Between Pages 100 & 101
Rosedale Foundry & Machine Co. 193
Russell, Burdsall & Ward Bolt & Nut Co. 89
*Ruthman Machinery Co., The 129
Ryerson, Jos. T. & Son, Inc. Between Pages 68 & 69

S

Scott Paper Co. 48
*Selas Corp. of America 177
Service Steel, Div. Van Pelt Corp. 197
Smith, Thomas Co. 194
*Smokatron Div. Summer & Co. 16
*Sperry Products Inc. 139
Square D Company EC & M Division 92
*Stalwart Rubber Co. 154
*Standard Pressed Steel Co. 149
Standard Steel Works Div., The Baldwin-Lima-Hamilton Corp. 145
Standard Tube Sales Corp. 194
Stanhope, R. C., Inc. 190
Strom Machinery Corp. 191
Sun Oil Co. 96
Superior Metal Products Mfg. Co. 192
*Surface Combustion Corp., Heat Treat Division ..... 32 & 33

T

Taylor-Winfield Corp., The 146
*Tennessee Fabricating Co. 148
Timken Roller Bearing Co., The 86
*Trabon Engineering Corp. Inside Back Cover
Tractor & Equipment Co. 191

U

Union Carbide Corp. Electro Metallurgical Div. 100
Union Carbide Corp. Linde Div. ..... 59 & 185
United Engineering & Foundry Co. Between Pages 166 & 16
*U. S. Burke, Machine Tool Division 162
U. S. Industrial Chemicals Co., Div. of National Distillers & Chemical Corp. 52
*United States Steel Corp. Between Pages 16 & 17
Universal Machinery & Equipment Co. 190

V

*Victor Equipment Co. Between Pages 100 & 101

W

Wallack Bros. 194
Ward Steel Co. 128
Wean Engineering Co., Inc., The 47
Weatherly Foundry & Mfg. Co. 194
Weiss Steel Co., Inc. 19
*West Penn Power Co. 161
Wheland Co., The 148
Wickwire Spencer Steel Div., The Colorado Fuel & Iron Corp. 164
Wigglesworth Industrial Corp. 191
Wilcox Forging Corp. 194
Williams-White & Co. 187

Y

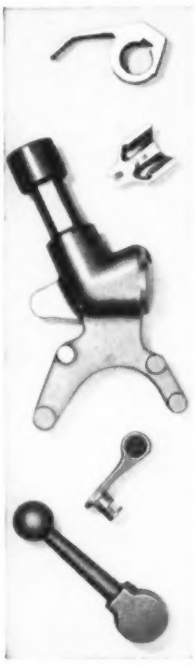
Youngstown Foundry & Machine Co. 23
Youngstown Sheet & Tube Co., The 44

CLASSIFIED SECTION

Clearing House 188-193
Contract Manufacturing 193-194
Employment Exchange 194
Equipment & Materials Wanted 194

RITCO FORGINGS

cut machining to a minimum ...save time and labor!



More and more cost-conscious buyers of metal parts are turning to lighter, stronger Ritco Forgings. Here's why...

MINIMUM MACHINING! Made to close-tolerance specifications, Ritco Forgings are highly accurate and require a minimum of machining . . . save hours of time and labor . . . keep production costs *down*.

MAXIMUM STRENGTH! Because their dense, fibrous structure and controlled grain flow add greater strength and toughness to points of shock and stress, Ritco Forgings provide maximum impact resistance and fatigue strength.

FASTER ASSEMBLY! Flawlessly finished Ritco Forgings are free of flash, voids and blow holes . . . have smooth, accurate surfaces which speed up assembly, help reduce costs. Depending on your design requirements, Ritco Forgings can be produced in weights from ¼ to 15 lbs. in a wide range of metals and alloys.

Write Ritco into your plans . . . send blueprints for estimates!

Ritco also maintains complete facilities for machining for making Special Fasteners and Upsets. Send us your specifications!

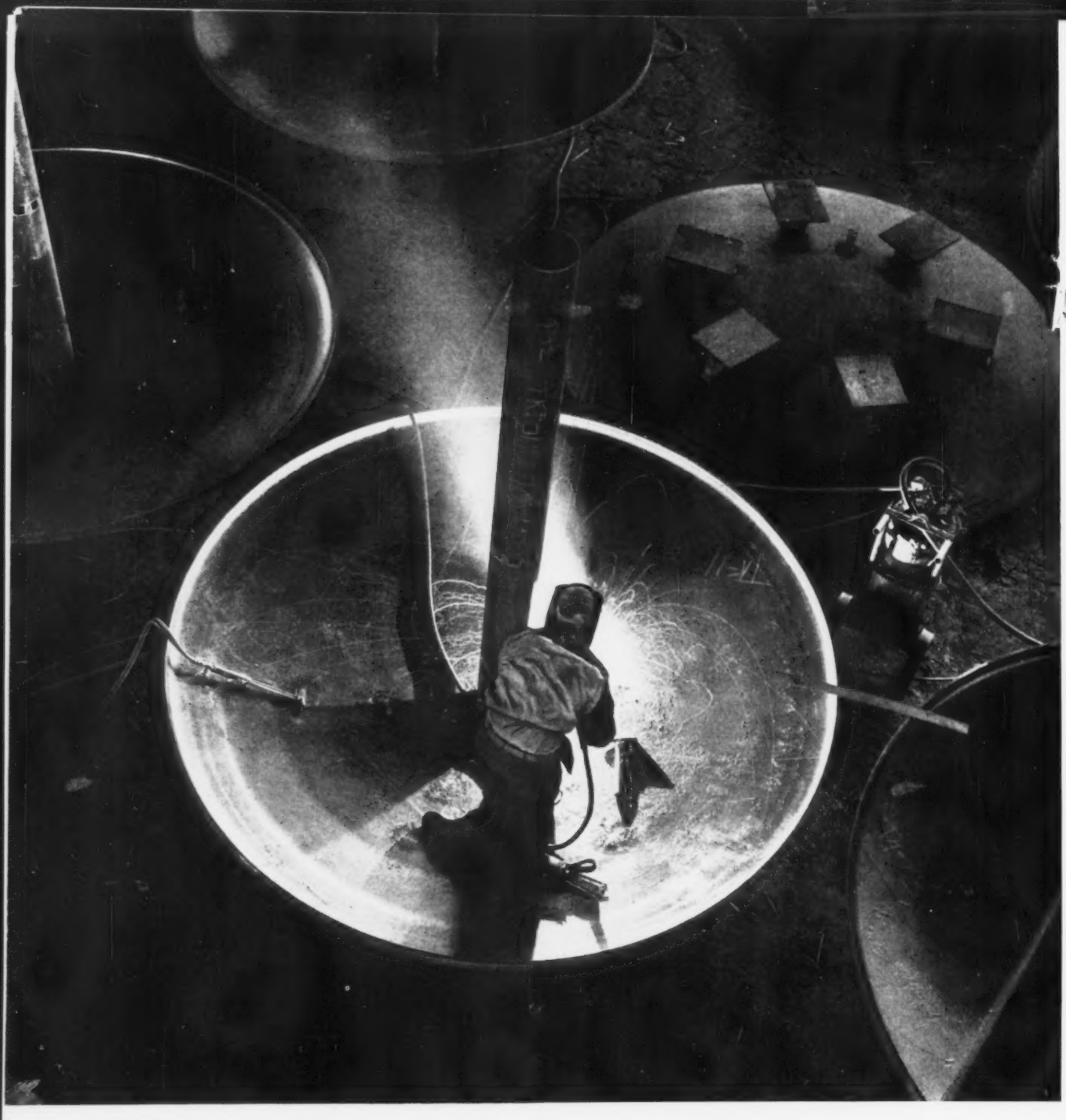
Exclusive New England representative for Cleveland Cap Screw Company.

RHODE ISLAND TOOL CO.

144 WEST RIVER STREET · PROVIDENCE 1, R. I.

STEEL TUBING

SERVICE STEEL



Sound Welds With Bethlehem Heads

Bethlehem Flanged-and-Dished Heads are easy to weld because they are made from grades of steel of uniformly high quality.

Types furnished include ASME Code, standard and elliptical flanged-and-dished, flanged-only, shallow-dished, tank-car, obround and double-dished. Diameters: up to 144 in.; thickness: 14 gage to 2½ in.

Bethlehem also produces standard manhole and handhole saddles, covers and fittings. We also furnish heads with flued openings. To help you maintain production schedules, Bethlehem stocks a number of flanged-and-dished heads for prompt delivery. Write to the nearest sales office for our stock list, or for full information on Bethlehem heads to meet your requirements.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

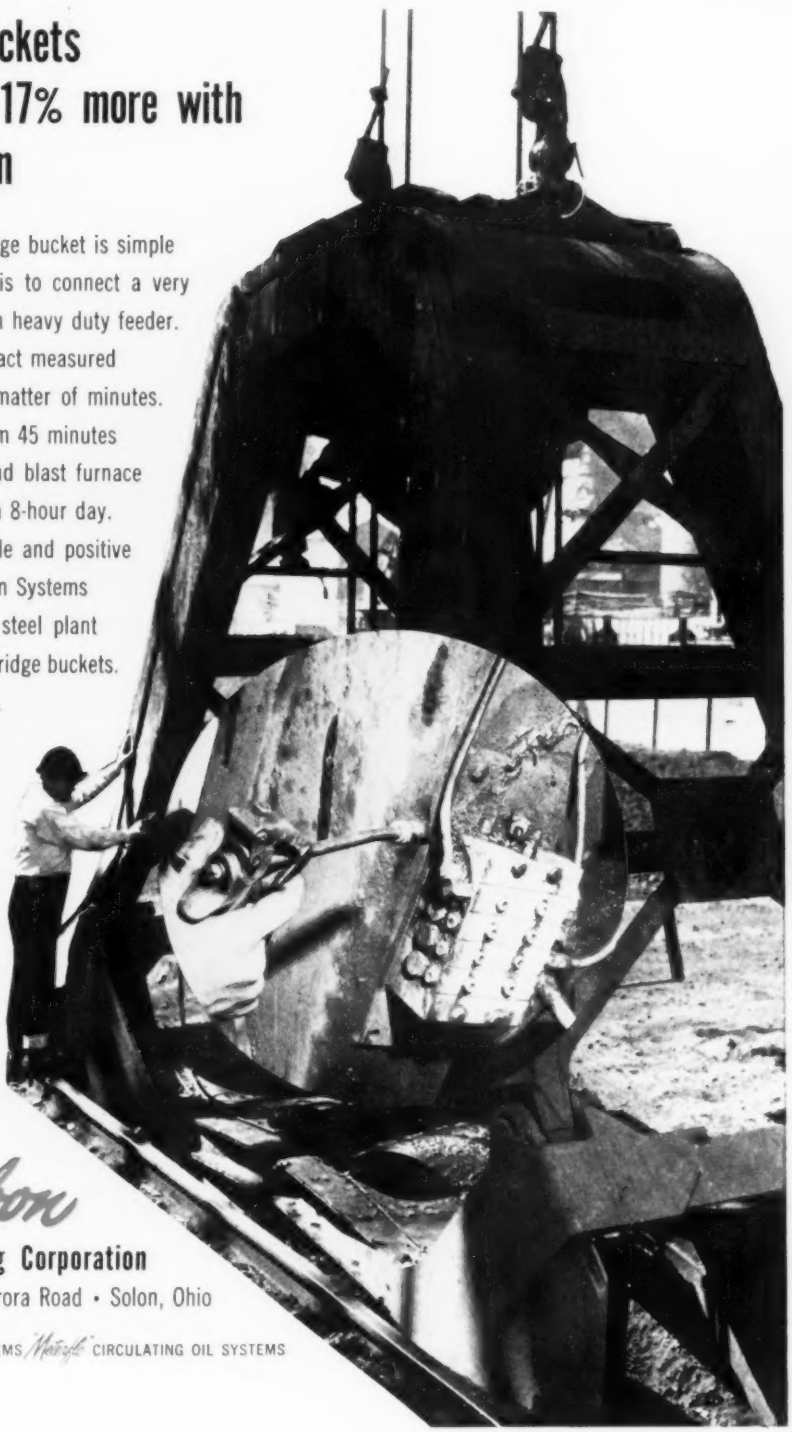
BETHLEHEM STEEL

TRABON

CENTRALIZED LUBRICATION

Giant ore bridge buckets dig and load 17% more with Trabon lubrication

Now, lubricating this giant ore bridge bucket is simple and economical! All a man does is to connect a very inexpensive grease gun to a Trabon heavy duty feeder. All 40 bearings then receive the exact measured amount of grease they need in a matter of minutes. Downtime for lubrication is cut from 45 minutes to less than 5 minutes. Digging and blast furnace loading time is increased 17% each 8-hour day. Lubrication is now safe, dependable and positive since Trabon Centralized Lubrication Systems were installed at this Midwestern steel plant three years ago on three giant ore bridge buckets. Write today for further information.



Close up shows Trabon feeder system operating on one of three similarly equipped ore bridge buckets. All industry relies on Trabon for positive lubrication under rugged conditions.

Trabon

Trabon Engineering Corporation

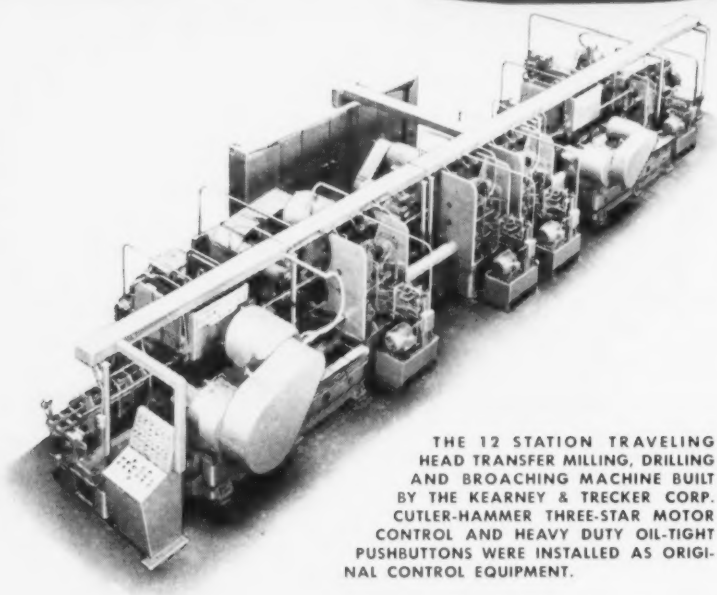
28815 Aurora Road • Solon, Ohio

"Centrifeed" OIL AND GREASE SYSTEMS "Metroflo" CIRCULATING OIL SYSTEMS

Choice of the Leaders

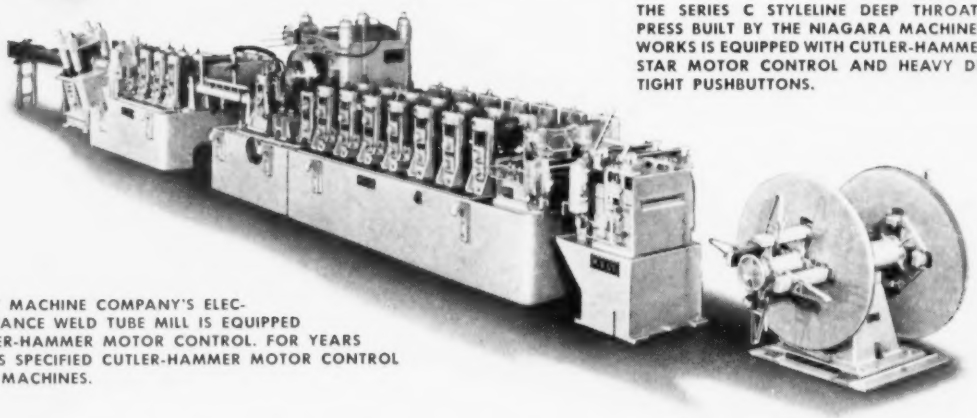
CUTLER-HAMMER
MOTOR CONTROL
C-H

The Mark of Better Machines



THE 12 STATION TRAVELING HEAD TRANSFER MILLING, DRILLING AND BROACHING MACHINE BUILT BY THE KEARNEY & TRECKER CORP. CUTLER-HAMMER THREE-STAR MOTOR CONTROL AND HEAVY DUTY OIL-TIGHT PUSHBUTTONS WERE INSTALLED AS ORIGINAL CONTROL EQUIPMENT.

THE SERIES C STYLELINE DEEP THROAT POWER PRESS BUILT BY THE NIAGARA MACHINE & TOOL WORKS IS EQUIPPED WITH CUTLER-HAMMER THREE-STAR MOTOR CONTROL AND HEAVY DUTY OIL-TIGHT PUSHBUTTONS.



THE McKAY MACHINE COMPANY'S ELECTRIC RESISTANCE WELD TUBE MILL IS EQUIPPED WITH CUTLER-HAMMER MOTOR CONTROL. FOR YEARS McKAY HAS SPECIFIED CUTLER-HAMMER MOTOR CONTROL FOR THEIR MACHINES.

Let the Stars be Your Guide

Whether or not a new machine can do a needed job is not difficult to determine. But the big question to be answered *before* purchase is always, "Will it do the job day after day for years without trouble and delays?"

Experienced buyers are not concerned by this question which time must answer. They know there are reliable guides to dependable machine performance and they base their judgment on these when making selections. One such guide which is widely used is Cutler-Hammer Three-Star Motor Control.

Cutler-Hammer Three-Star Motor Control does more than assure the buyer the electrical equipment is completely dependable. It shows the standard to which the machine was designed and built. It has long been the choice of the leaders and the mark of better machines. CUTLER-HAMMER, Inc., 1325 St. Paul Avenue, Milwaukee 1, Wisconsin. *Associate:* Canadian Cutler-Hammer, Ltd., Toronto.